

Annex Table 1 Detailed list of Threatened Birds listed in the IUCN Red List for Phase II

Annex Table 2 Detailed list of Birds listed in the CITES Appendix for Phase II

Annex Table 3 Detailed List of National Protected Birds for Phase II

Annex Table 4 Species statistics of meeting 1 % bird population criteria for Phase II

Annex Table 5 Detailed list of Threatened Vertebrates (Excluding birds) listed in the IUCN Red List for Phase II

Annex Table 6 Detailed list of Vertebrates (Excluding birds) listed in the CITES Appendix for Phase II

Annex Table 7 Detailed List of National Protected Vertebrates (Excluding birds) for Phase II

Annex Table 8 Detailed list of Threatened Plants listed in the IUCN Red List for Phase II

Annex Table 9 Detailed list of Plants listed in the CITES Appendix for Phase II

Annex Table 10 Detailed List of National Protected Plants for Phase II

Annex Table 11 Research Projects of Phase II

Annex File 12 Excerpts of regulations and provisions

Annex Table 13 Photographs and audiovisual image inventory and authorization form

Annex Table 1 Detailed list of Threatened Birds listed in the IUCN Red List for Phase II

Scientific Name	IUCN Red list	YS-3	YS-4	YS-5	YS-6	YS-7	YS-8	YS-9	YS-10	YS-11	YS-12	YS-13
<b>Total</b>		<b>22</b>	<b>30</b>	<b>23</b>	<b>18</b>	<b>40</b>	<b>34</b>	<b>36</b>	<b>22</b>	<b>27</b>	<b>23</b>	<b>6</b>
<i>Aythya baeri</i>	CR	√	√	√		√	√	√	√	√	√	
<i>Leucogeranus leucogeranus</i>	CR		√	√	√	√	√	√	√	√	√	
<i>Calidris pygmaea</i>	CR	√			√	√	√	√			√	
<i>Thalasseus bernsteini</i>	CR					√						
<i>Emberiza aureola</i>	CR	√	√	√	√	√	√	√	√	√	√	√
<b>Number of CR</b>		<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>5</b>	<b>4</b>	<b>4</b>	<b>3</b>	<b>3</b>	<b>4</b>	<b>1</b>
<i>Mergus squamatus</i>	EN	√	√	√		√	√	√				
<i>Grus japonensis</i>	EN		√	√		√	√	√	√	√	√	
<i>Numenius madagascariensis</i>	EN	√	√	√	√	√	√	√	√	√	√	
<i>Tringa guttifer</i>	EN	√	√		√	√		√	√		√	
<i>Calidris tenuirostris</i>	EN	√	√	√	√	√	√	√	√	√	√	√
<i>Ciconia boyciana</i>	EN	√	√	√	√	√	√	√	√	√	√	
<i>Platalea minor</i>	EN	√	√	√	√	√	√	√	√	√	√	
<i>Aquila nipalensis</i>	EN		√			√	√	√		√		
<i>Haliaeetus leucoryphus</i>	EN		√			√			√			
<i>Falco cherrug</i>	EN		√			√	√	√		√		
<i>Acrocephalus sorghophilus</i>	EN	√				√	√	√				
<i>Emberiza jankowskii</i>	EN					√						
<b>Number of EN</b>		<b>7</b>	<b>10</b>	<b>6</b>	<b>5</b>	<b>12</b>	<b>9</b>	<b>10</b>	<b>7</b>	<b>7</b>	<b>6</b>	<b>1</b>
<i>Anser cygnoides</i>	VU	√	√	√	√	√	√	√	√	√	√	
<i>Anser erythropus</i>	VU	√	√	√		√	√	√	√			
<i>Branta ruficollis</i>	VU			√								
<i>Aythya ferina</i>	VU	√	√	√	√	√	√	√	√	√	√	√
<i>Polysticta stelleri</i>	VU						√					
<i>Melanitta fusca</i>	VU		√	√					√	√	√	

Migratory Bird Sanctuaries along the Coast of Yellow Sea-Bohai Gulf of China (Phase II)

Scientific Name	IUCN Red list	YS-3	YS-4	YS-5	YS-6	YS-7	YS-8	YS-9	YS-10	YS-11	YS-12	YS-13
<i>Clangula hyemalis</i>	VU			√	√	√	√	√		√	√	√
<i>Podiceps auritus</i>	VU		√	√	√	√	√	√		√		
<i>Otis tarda dybowskii</i>	VU		√	√	√	√	√	√	√	√	√	
<i>Coturnicops exquisitus</i>	VU	√	√			√	√	√		√		
<i>Grus vipio</i>	VU	√	√	√		√	√	√	√	√	√	
<i>Grus monacha</i>	VU	√	√			√	√	√	√	√	√	
<i>Rissa tridactyla</i>	VU	√	√		√	√	√	√		√	√	
<i>Saundersi saundersi</i>	VU	√	√	√	√	√	√	√	√	√	√	
<i>Ichthyaetus relictus</i>	VU	√	√	√	√	√	√	√	√		√	
<i>Phoebastria albatrus</i>	VU					√						
<i>Hydrobates leucorhous</i>	VU					√	√					
<i>Egretta eulophotes</i>	VU	√			√	√	√	√	√	√	√	√
<i>Clanga clanga</i>	VU		√	√		√	√	√		√		
<i>Aquila heliaca</i>	VU		√	√		√	√	√		√	√	
<i>Haliaeetus pelagicus</i>	VU					√				√		
<i>Bubo scandiacus</i>	VU					√		√	√			
<i>Pitta nympha</i>	VU	√						√				
<i>Corvus pectoralis</i>	VU		√			√	√	√				
<i>Acrocephalus tangorum</i>	VU					√	√			√		
<i>Locustella pleskei</i>	VU							√				
<i>Turdus feae</i>	VU				√			√				
<i>Emberiza rustica</i>	VU	√	√	√		√	√	√	√	√	√	√
Number of VU		12	16	14	10	22	20	21	12	17	13	4

Annex Table 2 Detailed list of Birds listed in the CITES Appendix for Phase II

Scientific Name	CITES Appendix	YS-3	YS-4	YS-5	YS-6	YS-7	YS-8	YS-9	YS-10	YS-11	YS-12	YS-13
<b>Total</b>		<b>38</b>	<b>55</b>	<b>39</b>	<b>30</b>	<b>64</b>	<b>54</b>	<b>56</b>	<b>40</b>	<b>53</b>	<b>35</b>	<b>10</b>
<i>Leucogeranus leucogeranus</i>	I		√	√	√	√	√	√	√	√	√	
<i>Grus vipio</i>	I	√	√	√		√	√	√	√	√	√	
<i>Grus japonensis</i>	I		√	√		√	√	√	√	√	√	
<i>Grus monacha</i>	I	√	√			√	√	√	√	√	√	
<i>Tringa guttifer</i>	I	√	√		√	√		√	√		√	
<i>Ichthyaetus relictus</i>	I	√	√	√	√	√	√	√	√		√	
<i>Phoebastria albatrus</i>	I					√						
<i>Ciconia boyciana</i>	I	√	√	√	√	√	√	√	√	√	√	
<i>Pelecanus crispus</i>	I	√	√	√		√			√			
<i>Gypaetus barbatus</i>	I									√		
<i>Aquila heliaca</i>	I		√	√		√	√	√		√	√	
<i>Haliaeetus albicilla</i>	I	√	√			√	√	√	√	√		
<i>Falco peregrinus</i>	I	√	√	√	√	√	√	√		√		√
<i>Falco rusticolus</i>	I								√			
<b>Number of Appendix I</b>		<b>8</b>	<b>11</b>	<b>8</b>	<b>5</b>	<b>12</b>	<b>9</b>	<b>10</b>	<b>9</b>	<b>9</b>	<b>8</b>	<b>1</b>
<i>Branta ruficollis</i>	II			√								
<i>Sibirionetta formosa</i>	II	√	√	√	√	√	√	√	√	√	√	
<i>Phoenicopterus roseus</i>	II		√		√	√						
<i>Otis tarda</i>	II		√	√	√	√	√	√	√	√	√	
<i>Grus canadensis</i>	II		√			√	√	√				

Scientific Name	CITES Appendix	YS-3	YS-4	YS-5	YS-6	YS-7	YS-8	YS-9	YS-10	YS-11	YS-12	YS-13
<i>Anthropoides virgo</i>	II	√	√	√		√	√	√	√			
<i>Grus grus</i>	II	√	√	√		√	√	√	√	√		
<i>Ciconia nigra</i>	II	√	√	√		√		√	√	√	√	
<i>Platalea leucorodia</i>	II	√	√	√	√	√	√	√	√	√	√	
<i>Pandion haliaetus</i>	II	√	√	√	√	√	√	√	√	√		
<i>Elanus caeruleus</i>	II	√	√			√	√	√		√		
<i>Pernis ptilorhynchus</i>	II	√	√		√	√	√	√	√	√		
<i>Gyps himalayensis</i>	II									√		
<i>Aegypius monachus</i>	II	√	√			√	√	√	√	√	√	
<i>Spilornis cheela</i>	II									√		
<i>Circaetus gallicus</i>	II		√			√	√	√		√		
<i>Accipiter trivirgatus</i>	II									√		
<i>Nisaetus nipalensis</i>	II									√		
<i>Clanga clanga</i>	II		√	√		√	√	√		√		
<i>Hieraaetus pennatus</i>	II									√		
<i>Aquila nipalensis</i>	II		√			√	√	√		√		
<i>Aquila chrysaetos</i>	II		√	√		√	√	√	√	√	√	√
<i>Hieraaetus fasciatus</i>	II									√		
<i>Accipiter soloensis</i>	II	√	√	√	√	√	√	√		√	√	
<i>Accipiter gularis</i>	II		√	√	√	√	√	√		√	√	
<i>Accipiter virgatus</i>	II	√	√			√	√	√				√
<i>Accipiter nisus</i>	II	√	√	√	√	√	√	√	√	√	√	√

Scientific Name	CITES Appendix	YS-3	YS-4	YS-5	YS-6	YS-7	YS-8	YS-9	YS-10	YS-11	YS-12	YS-13
<i>Accipiter gentilis</i>	II	√	√	√	√	√	√	√	√	√	√	√
<i>Circus aeruginosus</i>	II				√	√	√	√	√		√	
<i>Circus spilonotus</i>	II	√	√	√	√	√	√	√	√	√		
<i>Circus cyaneus</i>	II	√	√	√	√	√	√	√	√	√	√	
<i>Circus melanoleucos</i>	II	√	√	√	√	√	√	√	√	√	√	
<i>Milvus migrans</i>	II	√	√	√		√	√	√		√	√	
<i>Haliaeetus leucoryphus</i>	II		√			√			√			
<i>Haliaeetus pelagicus</i>	II					√				√		
<i>Butastur indicus</i>	II		√		√	√	√	√		√		
<i>Buteo lagopus</i>	II		√	√		√	√	√	√	√	√	
<i>Buteo hemilasius</i>	II	√	√	√		√	√	√	√	√	√	√
<i>Buteo buteo</i>	II	√	√	√	√	√	√	√		√	√	√
<i>Otus bakkamoena</i>	II	√	√			√	√	√		√	√	
<i>Otus scops</i>	II					√	√	√				
<i>Otus sunia</i>	II	√	√	√	√	√	√	√	√	√	√	
<i>Bubo scandiacus</i>	II					√		√	√			
<i>Bubo bubo</i>	II		√			√	√	√	√	√		
<i>Strix nivicolium</i>	II					√	√	√				
<i>Strix uralensis</i>	II					√	√	√				
<i>Glaucidium passerinum</i>	II					√						
<i>Glaucidium cuculoides</i>	II	√	√									
<i>Athene noctua</i>	II		√	√	√	√	√	√	√	√	√	

Scientific Name	CITES Appendix	YS-3	YS-4	YS-5	YS-6	YS-7	YS-8	YS-9	YS-10	YS-11	YS-12	YS-13
<i>Ninox scutulata</i>	II	√		√		√			√	√	√	
<i>Ninox Japonica</i>	II		√		√	√	√	√				
<i>Asio otus</i>	II	√	√	√		√	√	√	√	√	√	
<i>Asio flammeus</i>	II	√	√	√	√	√	√	√	√	√	√	√
<i>Tyto longimembris</i>	II	√	√	√		√						
<i>Falco naumanni</i>	II		√		√	√						
<i>Falco tinnunculus</i>	II	√	√	√	√	√	√	√	√	√	√	√
<i>Falco amurensis</i>	II		√	√	√	√	√	√	√	√	√	
<i>Falco columbarius</i>	II	√	√	√	√	√	√	√	√	√	√	
<i>Falco subbuteo</i>	II	√	√	√	√	√	√	√	√	√	√	√
<i>Falco cherrug</i>	II		√			√	√	√		√		
<i>Pitta nympha</i>	II	√						√				
<i>Garrulax canorus</i>	II						√					
<i>Leiothrix lutea</i>	II						√					
<b>Number of Appendix II</b>		<b>30</b>	<b>44</b>	<b>31</b>	<b>25</b>	<b>52</b>	<b>45</b>	<b>46</b>	<b>30</b>	<b>45</b>	<b>27</b>	<b>9</b>

Annex Table 3 Detailed List of National Protected Birds for Phase II

Scientific Name	National Protected Level	YS-3	YS-4	YS-5	YS-6	YS-7	YS-8	YS-9	YS-10	YS-11	YS-12	YS-13
<b>Total</b>		<b>73</b>	<b>90</b>	<b>69</b>	<b>60</b>	<b>114</b>	<b>97</b>	<b>97</b>	<b>68</b>	<b>80</b>	<b>59</b>	<b>18</b>
<i>Aythya baeri</i>	I	√	√	√		√	√	√	√	√	√	
<i>Mergus squamatus</i>	I	√	√	√		√	√	√				
<i>Otis tarda</i>	I		√	√	√	√	√	√	√	√	√	
<i>Leucogeranus leucogeranus</i>	I		√	√	√	√	√	√	√	√	√	
<i>Grus vipio</i>	I	√	√	√		√	√	√	√	√	√	
<i>Grus japonensis</i>	I		√	√		√	√	√	√	√	√	
<i>Grus monacha</i>	I	√	√			√	√	√	√	√	√	
<i>Tringa guttifer</i>	I	√	√		√	√		√	√		√	
<i>Calidris pygmaea</i>	I	√			√	√	√	√			√	
<i>Saundersilarus saundersi</i>	I	√	√	√	√	√	√	√	√	√	√	
<i>Ichthyaetus relictus</i>	I	√	√	√	√	√	√	√	√		√	
<i>Thalasseus bernsteini</i>	I					√						
<i>Phoebastria nigripes</i>	I					√						
<i>Phoebastria albatrus</i>	I					√						
<i>Mycteria leucocephala</i>	I					√						
<i>Ciconia nigra</i>	I	√	√	√		√		√	√	√	√	
<i>Ciconia boyciana</i>	I	√	√	√	√	√	√	√	√	√	√	
<i>Threskiornis melanocephalus</i>	I					√	√		√		√	
<i>Plegadis falcinellus</i>	I	√										
<i>Platalea minor</i>	I	√	√	√	√	√	√	√	√	√	√	
<i>Egretta eulophotes</i>	I	√			√	√	√	√	√	√	√	√



Scientific Name	National Protected Level	YS-3	YS-4	YS-5	YS-6	YS-7	YS-8	YS-9	YS-10	YS-11	YS-12	YS-13
<i>Pelecanus onocrotalus</i>	I		√				√					
<i>Pelecanus philippensis</i>	I	√				√						
<i>Pelecanus crispus</i>	I	√	√	√		√			√			
<i>Gypaetus barbatus</i>	I									√		
<i>Aegypius monachus</i>	I	√	√			√	√	√	√	√	√	
<i>Clanga clanga</i>	I		√	√		√	√	√		√		
<i>Aquila nipalensis</i>	I		√			√	√	√		√		
<i>Aquila heliaca</i>	I		√	√		√	√	√		√	√	
<i>Aquila chrysaetos</i>	I		√	√		√	√	√	√	√	√	√
<i>Haliaeetus leucoryphus</i>	I		√			√			√			
<i>Haliaeetus albicilla</i>	I	√	√			√	√	√	√	√		
<i>Haliaeetus pelagicus</i>	I					√				√		
<i>Falco cherrug</i>	I		√			√	√	√		√		
<i>Falco rusticolus</i>	I								√			
<i>Emberiza jankowskii</i>	I					√						
<i>Emberiza aureola</i>	I		√	√	√	√	√	√	√	√	√	√
<b>Number of Level I</b>		<b>17</b>	<b>24</b>	<b>16</b>	<b>10</b>	<b>33</b>	<b>23</b>	<b>23</b>	<b>21</b>	<b>21</b>	<b>19</b>	<b>3</b>
<i>Anser cygnoides</i>	II	√	√	√	√	√	√	√	√	√	√	
<i>Anser albifrons</i>	II	√	√	√	√	√	√	√	√	√	√	√
<i>Anser erythropus</i>	II	√	√	√		√	√	√	√			
<i>Branta ruficollis</i>	II			√								
<i>Cygnus olor</i>	II		√	√	√	√	√	√	√	√		
<i>Cygnus columbianus</i>	II	√	√	√	√	√	√	√	√			

Scientific Name	National Protected Level	YS-3	YS-4	YS-5	YS-6	YS-7	YS-8	YS-9	YS-10	YS-11	YS-12	YS-13
<i>Cygnus cygnus</i>	II	√	√	√	√	√	√	√	√	√	√	√
<i>Aix galericulata</i>	II	√	√	√	√	√	√	√	√	√	√	
<i>Nettapus coromandelianus</i>	II					√	√					
<i>Sibirionetta formosa</i>	II	√	√	√	√	√	√	√	√	√	√	
<i>Mergellus albellus</i>	II		√	√	√	√	√	√		√	√	√
<i>Podiceps grisegena</i>	II		√		√	√	√	√				
<i>Podiceps auritus</i>	II		√	√	√	√	√	√		√		
<i>Podiceps nigricollis</i>	II	√	√	√	√	√	√	√		√		
<i>Treron sieboldii</i>	II									√		
<i>Centropus sinensis</i>	II					√						
<i>Centropus bengalensis</i>	II	√	√	√		√						
<i>Coturnicops exquisitus</i>	II	√	√			√	√	√		√		
<i>Zapornia paykullii</i>	II	√	√			√				√	√	
<i>Grus canadensis</i>	II		√			√	√	√				
<i>Anthropoides virgo</i>	II	√	√	√		√	√	√	√			
<i>Grus grus</i>	II	√	√	√		√	√	√	√	√		
<i>Ibidorhyncha struthers</i>	II										√	
<i>Hydrophasianus chirurgus</i>	II	√						√				
<i>Limnodromus semipalmatus</i>	II	√	√	√	√	√	√	√	√			
<i>Numenius minutus</i>	II	√	√	√	√	√	√	√	√	√	√	
<i>Numenius arquata</i>	II	√	√	√	√	√	√	√	√	√	√	
<i>Numenius madagascariensis</i>	II	√	√	√	√	√	√	√	√	√	√	
<i>Arenaria interpres</i>	II	√	√	√	√	√	√	√	√	√	√	
<i>Calidris tenuirostris</i>	II	√	√	√	√	√	√	√	√	√	√	√

Scientific Name	National Protected Level	YS-3	YS-4	YS-5	YS-6	YS-7	YS-8	YS-9	YS-10	YS-11	YS-12	YS-13
<i>Calidris falcinellus</i>	II	√	√		√	√	√	√	√		√	
<i>Hydrocoloeus minutus</i>	II					√	√	√				
<i>Chlidonias niger</i>	II			√	√	√	√	√				
<i>Fregata minor</i>	II					√						
<i>Fregata ariel</i>	II					√						
<i>Sula leucogaster</i>	II	√										
<i>Phalacrocorax pelagicus</i>	II		√	√		√		√		√		√
<i>Platalea leucorodia</i>	II	√	√	√	√	√	√	√	√	√	√	
<i>Ixobrychus minutus</i>	II	√										
<i>Egretta sacra</i>	II						√					
<i>Pandion haliaetus</i>	II	√	√	√	√	√	√	√	√			
<i>Elanus caeruleus</i>	II	√	√			√	√	√		√		
<i>Pernis ptilorhynchus</i>	II	√	√		√	√	√	√	√	√		
<i>Gyps himalayensis</i>	II									√		
<i>Spilornis cheela</i>	II									√		
<i>Circus gallicus</i>	II		√			√	√	√		√		
<i>Spizaetus nipalensis</i>	II									√		
<i>Hieraaetus pennatus</i>	II									√		
<i>Hieraaetus fasciatus</i>	II									√		
<i>Accipiter trivirgatus</i>	II									√		
<i>Accipiter soloensis</i>	II	√	√	√	√	√	√	√		√	√	
<i>Accipiter gularis</i>	II		√	√	√	√	√	√		√	√	
<i>Accipiter virgatus</i>	II	√	√			√	√	√				√
<i>Accipiter nisus</i>	II	√	√	√	√	√	√	√	√	√	√	√

Scientific Name	National Protected Level	YS-3	YS-4	YS-5	YS-6	YS-7	YS-8	YS-9	YS-10	YS-11	YS-12	YS-13
<i>Accipiter gentilis</i>	II	√	√	√	√	√	√	√	√	√	√	√
<i>Circus aeruginosus</i>	II				√	√	√	√	√		√	
<i>Circus spilonotus</i>	II	√	√	√	√	√	√	√	√	√		
<i>Circus cyaneus</i>	II	√	√	√	√	√	√	√	√	√	√	
<i>Circus melanoleucos</i>	II	√	√	√	√	√	√	√	√	√	√	
<i>Milvus migrans</i>	II	√	√	√		√	√	√		√	√	
<i>Butastur indicus</i>	II		√		√	√	√	√		√		
<i>Buteo lagopus</i>	II		√	√		√	√	√	√	√	√	
<i>Buteo hemilasius</i>	II	√	√	√		√	√	√	√	√	√	√
<i>Buteo buteo</i>	II	√	√	√	√	√	√	√		√	√	√
<i>Otus lettia</i>	II	√	√			√	√	√		√	√	
<i>Otus scops</i>	II					√	√	√				
<i>Otus sunia</i>	II	√	√	√	√	√	√	√	√	√	√	
<i>Bubo scandiacus</i>	II					√		√	√			
<i>Bubo bubo</i>	II		√			√	√	√	√	√		
<i>Strix nivicolum</i>	II					√	√	√				
<i>Strix uralensis</i>	II					√	√	√				
<i>Glaucidium passerinum</i>	II					√						
<i>Glaucidium cuculoides</i>	II	√	√									
<i>Athene noctua</i>	II		√	√	√	√	√	√	√	√	√	
<i>Ninox scutulata</i>	II	√		√		√			√	√	√	
<i>Ninox Japonica</i>	II		√		√	√	√	√				
<i>Asio otus</i>	II	√	√	√		√	√	√	√	√	√	
<i>Asio flammeus</i>	II	√	√	√	√	√	√	√	√	√	√	√

Scientific Name	National Protected Level	YS-3	YS-4	YS-5	YS-6	YS-7	YS-8	YS-9	YS-10	YS-11	YS-12	YS-13
<i>Tyto longimembris</i>	II	√		√		√						
<i>Picoides tridactylus</i>	II						√					
<i>Falco naumanni</i>	II		√		√	√						
<i>Falco tinnunculus</i>	II	√	√	√	√	√	√	√	√	√	√	√
<i>Falco amurensis</i>	II		√	√	√	√	√	√	√	√	√	
<i>Falco columbarius</i>	II	√	√	√	√	√	√	√	√	√	√	
<i>Falco subbuteo</i>	II	√	√	√	√	√	√	√	√	√	√	√
<i>Falco peregrinus</i>	II	√	√	√	√	√	√	√		√		√
<i>Pitta nympha</i>	II	√						√				
<i>Pitta moluccensis</i>	II					√						
<i>Melanocorypha mongolica</i>	II		√		√	√	√	√				
<i>Alauda arvensis</i>	II	√	√	√	√	√	√	√	√	√	√	√
<i>Acrocephalus sorghophilus</i>	II	√				√	√	√				
<i>Paradoxornis heudei</i>	II	√	√	√	√	√	√	√	√			
<i>Zosterops erythropleurus</i>	II		√	√	√	√	√	√	√	√		
<i>Garrulax canorus</i>	II						√					
<i>Leiothrix lutea</i>	II						√					
<i>Turdus feae</i>	II				√			√				
<i>Calliope calliope</i>	II	√	√	√	√	√	√	√	√	√	√	
<i>Luscinia svecica</i>	II	√	√	√	√	√	√	√	√	√	√	
<i>Niltava davidi</i>	II				√		√	√				
<i>Carpodacus roseus</i>	II			√		√	√	√	√	√		
<i>Loxia curvirostra</i>	II					√	√	√		√		
<i>Porphyrio porphyrio</i>	II	√										

Scientific Name	National Protected Level	YS-3	YS-4	YS-5	YS-6	YS-7	YS-8	YS-9	YS-10	YS-11	YS-12	YS-13
Number of Level II		55	64	53	50	81	74	74	45	59	39	15

Annex Table 4 Species statistics of meeting 1 % bird population criteria for phase II

Scientific Name	1 % Criteria	YS-1 YS-2	YS-3	YS-4	YS-5	YS-6	YS-7	YS-8	YS-9	YS-10	YS-11	YS-12	YS-13	Max	Proportion of population
<i>Tringa guttifer</i>	5	1150		15		7						40		1150	230.00 % <sup>4</sup>
<i>Saundersilarus saundersi</i>	85	3755	110	10294						16856		2190		16856	198.31% <sup>5</sup>
<i>Grus japonensis</i>	4	658		137			12 <sup>6</sup>	270	80	504				658	164.50% <sup>7</sup>
<i>Ichthyaetus relictus</i>	120					11100				1740		345		11100	92.50%
<i>Egretta eulophotes</i>	35											77	3163	3163	90.37%
<i>Pelecanus crispus</i>	1			84										84	84.00%
<i>Calidris pygmeus</i>	3	224										4		224	74.67%
<i>Calidris ferruginea</i>	900					61890								61890	68.77% <sup>8</sup>
<i>Leucogeranus leucogeranus</i>	35			2356			56 <sup>9</sup>	500 <sup>10</sup>	500	500				2356	67.31%
<i>Calidris canutus</i>	1100	2030				66500				6200		1499		66500	60.45%

<sup>4</sup> The global population standard of Nordmann's Greenshank is based on the 2012 WPE5 data, and the population number is 400-600. In 2020, 1150 Nordmann's shank were observed in Yancheng, Jiangsu (YS-1, 2).

<sup>5</sup> According to wpe5, the population of Saunders's Gull in Northeast Asia is 7,100-9600. Due to the increase in the breeding success rate of the Saunders's Gull in recent years, the population has increased. In 2019, 16856 Saunders's Gull were observed at YS-10.

<sup>6</sup> The maximum number of resting individuals recorded in a single record in Qilihai.

<sup>7</sup> According to WPE5, the population of Red-crowned Cranes in eastern China is 400-500. On January 12, 2014, 658 Red-crowned Crane overwintering populations were observed in Yancheng, Jiangsu (YS-1, 2).

<sup>8</sup> The global population standard of the *Calidris ferruginea* uses the data in the *Revision of the East Asian-Australasian Flyway Population Estimates for 37 listed Migratory Shorebird Species*.

<sup>9</sup> The maximum number of resting individuals recorded in a single record in Qilihai.

<sup>10</sup> Dachaoping and Shihenan Island have recorded the largest number of transits in a single day during the migration season in the past three years. The maximum number of stopped individuals recorded in a single time is in parentheses. All data of YS-8 and YS-9 refer to this note.

Scientific Name	1 % Criteria	YS-1 YS-2	YS-3	YS-4	YS-5	YS-6	YS-7	YS-8	YS-9	YS-10	YS-11	YS-12	YS-13	Max	Proportion of population
<i>Haematopus ostralegus</i>	70	2385	95	212						4219		2458		4219	60.27%
<i>Tringa erythropus</i>	250	2003	298	1150		13480				253		1300		13480	53.92%
<i>Charadrius alexandrinus</i>	1000	11358	2237	6011		6900				48767		31993		48767	48.77%
<i>Platalea leucorodia</i>	100	661		4500						450				4500	45.00%
<i>Limosa lapponica</i>	3250	6970		3343						4000		111446		111446	34.29%
<i>Grus grus</i>	150	3226		4449				1000	700					4449	29.66%
<i>Cygnus olor</i>	15			397										397	26.47%
<i>Pluvialis squatarola</i>	1000									23669				23669	23.67%
<i>Calidris tenuirostris</i>	4250	6072		12816		16760				68000		96850		96850	22.79%
<i>Grus vipio</i>	10			220	130									220	22.00%
<i>Phalacrocorax carbo</i>	1000	5972		21000		2480				1400				21000	21.00%
<i>Numenius madagascariensis</i>	350	362		7314						2152		6818		7314	20.90% <sup>11</sup>
<i>Grus monacha</i>	10		129	183				140(21)		198		99		198	19.80%
<i>Anser cygnoid</i>	680			12706										12706	18.69%
<i>Pluvialis squatarola</i>	800			14744		3620						7232		14744	18.43%
<i>Anser fabalis</i>	1100	4835		20016			4000					√		20016	18.20%
<i>Ciconia boyciana</i>	30	179		545			120 <sup>12</sup>	1500(30)	500(50)			80		545	18.17%

<sup>11</sup> The global population standard of the Eastern Curlew uses the data in the *Revision of the East Asian-Australasian Flyway Population Estimates for 37 listed Migratory Shorebird Species*.

<sup>12</sup> The maximum number of resting individuals recorded in a single record in Qilihai.



Scientific Name	1 % Criteria	YS-1 YS-2	YS-3	YS-4	YS-5	YS-6	YS-7	YS-8	YS-9	YS-10	YS-11	YS-12	YS-13	Max	Proportion of population
<i>Tadorna tadorna</i>	1200			3000		21090	2000			17411		7415		21090	17.58%
<i>Mergellus albellus</i>	250									3820				3820	15.28%
<i>Himantopus himantopus</i>	1000	2493		2197		15190								15190	15.19%
<i>Mareca falcata</i>	830		834	12000						1880				12000	14.46%
<i>Sterna hirundo</i>	460	6642		1535										6642	14.44%
<i>Calidris alba</i>	300	1723				4320								4320	14.40%
<i>Recurvirostra avosetta</i>	1000	1298				14250	2000			5832				14250	14.25%
<i>Grus grus</i>	150									1983				1983	13.22%
<i>Numenius arquata</i>	1000	1842		7925		8270	1200			2457		13136		13136	13.14%
<i>Tringa stagnatilis</i>	1300					15850								15850	12.19%
<i>Calidris acuminata</i>	850			2360		9470				4511		1788		9470	11.14%
<i>Cygnus cygnus</i>	600			6559										6559	10.93%
<i>Limosa limosa</i>	1600	9698	3540	15389		17480						√		17480	10.93%
<i>Calidris ruficollis</i>	4750	49621				20590								49621	10.45%
<i>Aythya fuligula</i>	2400											21100		21100	8.79%
<i>Platalea minor</i>	20	162	97	47						35		√		162	8.10%
<i>Limicola falcinellus</i>	300					730				505		1869		1869	6.23%
<i>Tringa totanus</i>	750	1684								4248				4248	5.66%
<i>Calidris alpina</i>	10000	35490	10876	42285		10504				29971		55087		55087	5.51%
<i>Tringa nebularia</i>	1100	1158								5329		1651		5329	4.84%
<i>Larus crassirostris</i>	10500											15000	49282	49282	4.69%
<i>Numenius minutus</i>	1100			4944										4944	4.49%

Scientific Name	1 % Criteria	YS-1 YS-2	YS-3	YS-4	YS-5	YS-6	YS-7	YS-8	YS-9	YS-10	YS-11	YS-12	YS-13	Max	Proportion of population
<i>Numenius phaeopus</i>	650			2886								√		2886	4.44%
<i>Xenus cinerea</i>	500	691		1231						1068		2206		2206	4.41%
<i>Calidris alba</i>	300									1300				1300	4.33%
<i>Arenaria interpres</i>	300	1222				360						464		1222	4.07%
<i>Phalacrocorax pelagicus</i>	250												983	983	3.93%
<i>Mergus merganser</i>	710	2752		845						1420		1890		2752	3.88%
<i>Cygnus columbianus</i>	1000			3873										3873	3.87%
<i>Gelochelidon nilotica</i>	1000	1029								3844				3844	3.84%
<i>Podiceps nigricollis</i>	1000					3810								3810	3.81%
<i>Chlidonias hybrida</i>	1000									3570				3570	3.57%
<i>Anser albifrons</i>	180											568		568	3.16%
<i>Nycticorax nycticorax</i>	10000	30491												30491	3.05%
<i>Mesophoyx intermedia</i>	1000	2942												2942	2.94%
<i>Ciconia nigra</i>	5			14						1				14	2.80%
<i>Chlidonias leucopterus</i>	10000					26030								26030	2.60%
<i>Aythya baeri</i>	5				13									13	2.60%
<i>Larus canus</i>	1000					1300				1523		2490		2490	2.49%
<i>Hydroprogne caspia</i>	250					590								590	2.36%

Scientific Name	1 % Criteria	YS-1 YS-2	YS-3	YS-4	YS-5	YS-6	YS-7	YS-8	YS-9	YS-10	YS-11	YS-12	YS-13	Max	Proportion of population
<i>Charadrius mongolus</i>	1800									4189		1950		4189	2.33%
<i>Charadrius leschenault</i>	100									220				220	2.20%
<i>Larus smithsonianus</i>	4100									8989				8989	2.19%
<i>Sibirionetta formosa</i>	7100		8000							15000				15000	2.11%
<i>Pluvialis fulva</i>	1200									2503				2503	2.09%
<i>Hydroprogne caspia</i>	250									521				521	2.08%
<i>Vanellus vanellus</i>	250									508				508	2.03%
<i>Tadorna ferruginea</i>	710									1406				1406	1.98%
<i>Limnodromus semipalmatus</i>	140					260								260	1.86%
<i>Pluvialis fulva</i>	1200	2089												2089	1.74%
<i>Podiceps cristatus</i>	350									533				533	1.52%
<i>Anas zonorhyncha</i>	11300			16154										16154	1.43%
<i>Larus ridibundus</i>	20000					21880	20000			27662				27662	1.38%
<i>Sterna albifrons</i>	1000	1319												1319	1.32%
<i>Calidris pugnax</i>	1000									1285				1285	1.29%
<i>Vanellus cinereus</i>	1000	1056						1200						1200	1.20%
<i>Egretta garzetta</i>	10000	11801												11801	1.18%
<i>Anas strepera</i>	7100									7753				7753	1.09%
<i>Ardea alba</i>	1000									1067				1067	1.07%
<i>Phalacrocorax capillatus</i>	1000												1037	1037	1.04%

Scientific Name	1 % Criteria	YS-1 YS-2	YS-3	YS-4	YS-5	YS-6	YS-7	YS-8	YS-9	YS-10	YS-11	YS-12	YS-13	Max	Proportion of population
<i>Anser caerulescens</i>	1											1		1	1.00%
<b>Total</b>		37	10	38	2	27	8	6	4	47	0	34	4	/	/

The classification list of waterbirds species and population estimates in this report follow the 5th edition of Waterfowl Population Estimation (2012), and other data sources have been indicated in the footnotes.

Annex Table 5 Detailed list of Threatened Vertebrates (Excluding birds) listed in the IUCN Red List for Phase II

Order	Family	Scientific name	IUCN Red list	YS-3	YS-4	YS-5	YS-6	YS-7	YS-8	YS-9	YS-10	YS-11	YS-12	YS-13
Cetaceans	Porpoise	<i>Neophocaena asiaeorientalis</i>	EN		√		√				√			√
Mammal-IUCN-EN				0	1	0	1	0	0	0	1	0	0	1
Cetaceans	Porpoise	<i>Neomeris phocaenoides</i>	VU	√										
Cetaceans	Balaenopteridae	<i>Balaenoptera physalus</i>	VU											√
Cetaceans	Delphinidae	<i>Sousa chinensis</i>	VU											√
Carnivores	Mustelidae	<i>Arctonyx collaris</i>	VU			√						√	√	
Mammal-IUCN-VU				1	0	1	0	0	0	0	0	1	1	2
<b>Mammal: Number of species listed in IUCN Red list</b>				<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>3</b>
Acipenseriformes	Acipenseridae	<i>Acipenser sinensis</i>	CR	√										
Acipenseriformes	Acipenseridae	<i>Acipenser dabryanus</i>	CR		√									
Acipenseriformes	Acipenseridae	<i>Huso dauricus</i>	CR		√									
Fish-IUCN-CR				1	2	0	0	0	0	0	0	0	0	0
Clupeiformes	Engraulidae	<i>Coilia ectenes</i>	EN	√	√		√							
Clupeiformes	Engraulidae	<i>Coilia mystus</i>	EN	√	√		√							
Anguilliformes	Anguillidae	<i>Anguilla japonica</i>	EN	√	√									
Carcharhiniformes	Triakidae	<i>Mustelus manazo</i>	EN				√							
Carcharhiniformes	Triakidae	<i>Triakis scyllium</i>	EN		√		√							
Fish-IUCN-EN				3	4	0	4	0	0	0	0	0	0	0
Cypriniformes	Cyprinidae	<i>Cyprinus carpio</i>	VU	√	√	√					√	√	√	
Gasterosteiformes	Gasterosteidae	<i>Pungitius sinensis</i>	VU		√							√	√	
Gasterosteiformes	Syngnathidae	<i>Hippocampus mohnikei</i>	VU		√		√							√

Order	Family	Scientific name	IUCN Red list	YS-3	YS-4	YS-5	YS-6	YS-7	YS-8	YS-9	YS-10	YS-11	YS-12	YS-13
Myliobatiformes	Dasyatidae	<i>Dasyatis navarrae</i>	VU		√									
Carcharhiniformes	Carcharhinidae	<i>Carcharhinus menisorrh</i>	VU				√							
Carcharhiniformes	Carcharhinidae	<i>Sphyrna zygaena</i>	VU		√									
Carcharhiniformes	Carcharhinidae	<i>Carcharhinus plumbeus</i>	VU				√							
Fish-IUCN-VU				1	5	1	3	0	0	0	1	2	2	1
<b>Fish: Number of species listed in IUCN Red list</b>				<b>5</b>	<b>11</b>	<b>1</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>1</b>
Testudines	Geoemydidae	<i>Mauremys reevesii</i>	EN		√			√						
Reptiles-IUCN-EN				0	1	0	0	1	0	0	0	0	0	0
Testudines	Trionychidae	<i>Pelodiscus sinensis</i>	VU		√			√		√				
Testudines	Dermochelyidae	<i>Dermochelys coriacea</i>	VU		√			√	√	√				
Mitogenome	Gekkonidae	<i>Gekko swinhonis</i>	VU		√	√	√	√	√	√	√	√	√	
Serpentiformes	Viperidae	<i>Gloydius shedaoensis</i>	VU									√		
Reptiles-IUCN-VU				0	3	1	1	3	2	3	1	2	1	0
<b>Reptile: Number of species listed in IUCN Red list</b>				<b>0</b>	<b>4</b>	<b>1</b>	<b>1</b>	<b>4</b>	<b>2</b>	<b>3</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>0</b>

Annex Table 6 Detailed list of Vertebrates (Excluding birds) listed in the CITES Appendix for Phase II

Order	Family	Scientific name	CITES Appendix x	YS-3	YS-4	YS-5	YS-6	YS-7	YS-8	YS-9	YS-10	YS-11	YS-12	YS-13
Cetaceans	Porpoise	<i>Neomeris phocaenoides</i>	I	√										
Cetaceans	Porpoise	<i>Neophocaena asiaeorientalis</i>	I		√		√				√			√
Cetaceans	Balaenopteridae	<i>Balaenoptera acutorostrata</i>	I		√									√
Cetaceans	Eschrichtidae	<i>Eschrichtius robustus</i>	I											√
Cetaceans	Balaenopteridae	<i>Balaenoptera physalus</i>	I											√
Cetaceans	Delphinidae	<i>Sousa chinensis</i>	I											√
Mammal-CITES Appendix I				1	2	0	1	0	0	0	1	0	0	5
Carnivores	Felidae	<i>Prionailurus bengalensis</i>	II		√	√					√			
Carnivores	Canidae	<i>Canis lupus</i>	II										√	
Cetaceans	Delphinidae	<i>Tursiops truncatus</i>	II		√									
Cetaceans	Delphinidae	<i>Pseudorca crassidens</i>	II		√									
Mammal-CITES Appendix II				0	3	1	0	0	0	0	1	0	1	0
<b>Mammal: Number of species listed in CITES Appendix</b>				<b>1</b>	<b>5</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>5</b>
Acipenseriformes	Acipenseridae	<i>Acipenser sinensis</i>	II	√										
Carcharhiniformes	Sphyrnidae	<i>Sphyrna zygaena</i>	II		√									
Acipenseriformes	Acipenseridae	<i>Acipenser dabryanus</i>	II		√									
Acipenseriformes	Acipenseridae	<i>Huso dauricus</i>	II		√									
Gasterosteiformes	Syngnathidae	<i>Hippocampus mohnikei</i>	II		√		√							

Order	Family	Scientific name	CITES Appendix x	YS-3	YS-4	YS-5	YS-6	YS-7	YS-8	YS-9	YS-10	YS-11	YS-12	YS-13
Gasterosteiformes	Syngnathidae	<i>Hippocampus coronatus</i>	II		√									
<b>Fish: Number of species listed in CITES Appendix</b>				<b>1</b>	<b>5</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Testudines	Dermochelyidae	<i>Dermochelys coriacea</i>	I		√			√						
<b>Reptile: Number of species listed in CITES Appendix</b>				<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>



Annex Table 7 Detailed List of National Protected Vertebrates (Excluding birds) for Phase II

Order	Family	Scientific name	National Protected Level	YS-3	YS-4	YS-5	YS-6	YS-7	YS-8	YS-9	YS-10	YS-11	YS-12	YS-13
Cetaceans	Eschrichtidae	<i>Eschrichtius robustus</i>	1											√
Cetaceans	Balaenopteridae	<i>Balaenoptera physalus</i>	1											√
Cetaceans	Balaenopteridae	<i>Balaenoptera acutorostrata</i>	1		√									√
Cetaceans	Delphinidae	<i>Sousa chinensis</i>	1											√
Cetaceans	Porpoise	<i>Neophocaena asiaeorientalis</i>	1		√		√							√
Carnivores	Phocidae	<i>Phoca largha</i>	1		√									√
Mammal-National Protected Level 1				0	3	0	1	0	0	0	0	0	0	6
Cetaceans	Porpoise	<i>Neomeris phocaenoides</i>	2	√										
Cetaceans	Delphinidae	<i>Tursiops truncatus</i>	2		√									√
Cetaceans	Delphinidae	<i>Pseudorca crassidens</i>	2		√									√
Carnivores	Felidae	<i>Prionailurus bengalensis</i>	2		√	√					√			
Carnivores	Canidae	<i>Vulpes vulpes</i>	2		√	√		√					√	
Carnivores	Canidae	<i>Nyctereutes procyonoides</i>	2					√						
Carnivores	Canidae	<i>Canis lupus</i>	2										√	
Carnivores	Canidae	<i>Martes flavigula</i>	2					√						
Mammal- National Protected Level 2				1	4	2	0	3	0	0	1	0	2	2

Order	Family	Scientific name	National Protected Level	YS-3	YS-4	YS-5	YS-6	YS-7	YS-8	YS-9	YS-10	YS-11	YS-12	YS-13
<b>Mammal: Number of species listed in National Protected List</b>				<b>1</b>	<b>7</b>	<b>2</b>	<b>1</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>2</b>	<b>8</b>
Acipenseriformes	Acipenseridae	<i>Acipenser sinensis</i>	1	√										
Clupeiformes	Clupeidae	<i>Tenualosa reevesii</i>	1	√										
Acipenseriformes	Acipenseridae	<i>Acipenser dabryanus</i>	1		√									
Acipenseriformes	Acipenseridae	<i>Huso dauricus</i>	1		√									
Cypriniformes	Cyprinidae	<i>Coreius septentrionalis</i>	1		√									
Fish-National Protected Level 1				2	3	0	0	0	0	0	0	0	0	0
Cypriniformes	Catostomidae	<i>Myxocyprinus asiaticus</i>	2	√										
Scorpaeniformes	Cottidae	<i>Trachidermus fasciatus</i>	2	√	√									√
Gasterosteiformes	Syngnathidae	<i>Hippocampus mohnikei</i>	2		√		√							√
Gasterosteiformes	Syngnathidae	<i>Hippocampus coronatus</i>	2		√									
Petromyzoniformes	Petromyzontidae	<i>Lampetra reissneri</i>	2									√	√	
Petromyzoniformes	Petromyzontidae	<i>Lampetra morii</i>	2									√	√	
Salmoniformes	Salmonidae	<i>Brachymystax Lenok</i>	2									√	√	
Fish-National Protected Level 2				2	3	0	1	0	0	0	0	3	3	2
<b>Fish: Number of species listed in National Protected List</b>				<b>4</b>	<b>6</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>3</b>	<b>2</b>
Testudines	Dermochelyidae	<i>Dermochelys coriacea</i>	1		√			√						
Reptile-National Protected Level 1				0	1	0	0	1	0	0	0	0	0	0

Order	Family	Scientific name	National Protected Level	YS-3	YS-4	YS-5	YS-6	YS-7	YS-8	YS-9	YS-10	YS-11	YS-12	YS-13
Testudines	Geoemydidae	<i>Mauremys reevesii</i>	2		√			√						
Serpentiformes	Colubridae	<i>Elaphe davidi</i>	2					√						
Serpentiformes	Viperidae	<i>Gloydius shedaoensis</i>	2									√		
Reptile-National Protected Level 2				0	1	0	0	2	0	0	0	0	0	0
<b>Reptile: Number of species listed in National Protected List</b>				<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>

Annex Table 8 Detailed list of Threatened Plants listed in the IUCN Red List for Phase II

Family	Genus	Scientific name	IUCN Red list	YS-3	YS-4	YS-5	YS-6	YS-7	YS-8	YS-9	YS-10	YS-11	YS-12	YS-13
		<i>Ginkgo biloba</i>	EN									√	√	
Plant-IUCN-EN				0	0	0	0	0	0	0	0	1	1	0
		<i>Eucommia ulmoides</i>	VU		√									
		<i>Albizia julibrissin</i>	VU		√		√					√	√	
		<i>Gossypium hirsutum</i>	VU		√		√							
		<i>Plantago lanceolata</i>	VU		√							√		
Plant-IUCN-VU				0	4	0	2	0	0	0	0	2	1	0
<b>Plant: Number of species listed in IUCN Red list</b>				<b>0</b>	<b>4</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>2</b>	<b>0</b>

Annex Table 9 Detailed list of Plants listed in the CITES Appendix for Phase II

Family	Genus	Scientific name	CITES Appendix	YS-3	YS-4	YS-5	YS-6	YS-7	YS-8	YS-9	YS-10	YS-11	YS-12	YS-13
Orchidaceae	Malaxis	<i>Malaxis monophyllos</i>	II									√		
Orchidaceae	Spiranthes	<i>Spiranthes sinensis</i>	II									√		
<b>Plant: Number of species listed in CITES Appendix</b>				<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>

Annex Table 10 Detailed List of National Protected Plants for Phase II

Family	Genus	Scientific name	National Protected Level	YS-3	YS-4	YS-5	YS-6	YS-7	YS-8	YS-9	YS-10	YS-11	YS-12	YS-13
Ginkgoaceae	Ginkgo	<i>Ginkgo biloba</i>	1									√	√	
Plant-National Protected Level 1				0	0	0	0	0	0	0	0	1	1	0
Nelumbonaceae	Nelumbo	<i>Nelumbo nucifera</i>	2		√			√			√			
Fabaceae	Glycine	<i>Glycine soja</i>	2		√	√	√	√	√		√	√	√	
Oleaceae	Fraxinus	<i>Fraxinus mandshurica</i>	2										√	
Apiaceae	Glehnia	<i>Glehnia littoralis</i>	2						√			√		
Poaceae	Zoysia	<i>Zoysia sinica</i>	2								√	√		
Malvaceae	Tilia	<i>Tilia amurensis</i>	2										√	
Plant-National Protected Level 2				0	2	1	1	2	2	0	3	3	3	0
<b>Plant: Number of species listed in National Protected List</b>				0	2	1	1	2	2	0	3	4	4	0

Annex Table 11 Research Projects of Phase II

S.N	University/ Research Institute	Project Description			Main Research Directions and Content	Project Responsible Person	S.N. of Proje ct Site
		Project Name	Project Number	Project Level			
1	East China Normal University	Research on the Response of the Life History of An Endangered Salt Marsh Plant <i>Bolboschoenoplectus marigueter</i> to the Environmental Resource Gradient, and Optimization and Recovery Strategy	19230742600	Shanghai International Science and Technology Cooperation Fund	<p>With interests in the <i>Bolboschoenoplectus marigueter</i> population, this research project investigates the response of the life history of its natural population and experimental population to the principal environmental resource gradient, assesses and screens the suitable habitat conditions for the population and the small populations with the best life-history performance and optimum fitness, and systematically proposes the optimal ecological strategies for the scientific management, conservation, and restoration of the population.</p> <p>The research primarily involves: (1) the response of the life history of the natural population and experimental population of <i>Bolboschoenoplectus marigueter</i> to the principal environment and resource gradient; (2) the analysis of changes in population structure and life history patterns of natural and experimental small populations of <i>Bolboschoenoplectus marigueter</i> along the environmental resource gradient after being transplanted to homogeneous environmental resource conditions, and the screening of optimized small populations; (3) the analysis of changes in population structure and life history patterns of natural and experimental small populations of <i>Bolboschoenoplectus marigueter</i> along the environmental resource gradient after the reciprocal transplantation, and the screening of optimized small populations; and (4) the influence of environmental condition changes on the life history patterns of the population and the screening of optimized conditions.</p>	Li Dezhi	YS-3
2	East China Sea Fisheries Research Institute	Selection Differences and Causes of Habitat Sub-environment of <i>Acanthogobius ommaturus</i> and <i>Odontamblyopus lacepedii</i> in Salt Marsh Wetlands at the Yangtze	18ZR1449800	Research Project of Shanghai Municipal Science & Technology Commission	The research incorporates the in situ measurements of community composition and abundance changes, ecological groups, time and frequency of emergence of nektons in the three types of sub-habitats: native salt marsh, flat and tidal creek; the analysis of the degree of influence of species composition of fishes, shrimps, and crabs on the spatial and temporal distribution patterns of <i>Acanthogobius ommaturus</i> and <i>Odontamblyopus lacepedii</i> (including predator-prey relationships); the analysis of main influencing factors of such differences (abiotic and biotic) with focuses on the abundance, frequency	Zhang Heng	YS-3

## Migratory Bird Sanctuaries along the Coast of Yellow Sea-Bohai Gulf of China (Phase II)

S.N	University/ Research Institute	Project Description			Main Research Directions and Content	Project Responsible Person	S.N. of Proje ct Site
		Project Name	Project Number	Project Level			
		River Estuary			of emergence, body length distribution and stomach content composition of the two species in different sub-habitats.		
3	East China Normal University	Coping with Deltas in Transition	2016YFE 0133700	National Key R&D Program	Based on the previous two rounds of the Sino-Dutch Program Strategic Scientific Alliances, this program deepens and expands the collaborative research on the influence of human activities and climate change on Chinese and dutch estuarine deltas. The research areas are the Yangtze River Delta and the Rhine-Scheldt-Meuse River Delta; the research focuses on the mechanism of change and trend prediction for riverine material fluxes to the ocean, mechanism of transformation and trend prediction of geomorphological pattern of estuarine deltas, transformation process and mechanism of ecology and environment at estuarine deltas, environmental effects and counterstrategies of pattern changes of estuarine deltas, etc.	He Qing	YS-3
4	Fudan University	Research and Demonstration of Key Technologies for Coordinated Development of Birds Conservation and Renewable Energy in Chongming	18DZ120 5000	Research Project of Shanghai Municipal Science & Technology Commission	This research project examines the community structure of waterbirds in areas with and without wind farms and at different distances from wind farms on the community scale to know the influence of wind farms on waterbirds to understand the influence of wind farms and surrounding environmental factors on waterbirds by the multivariate statistical analysis.	Ma Zhijun	YS-3
5	East China Normal University	Modeling Nitrous Oxide Emission Factors and Watershed Scale for Rivers in Urbanized Areas	41977321	National Natural Science Foundation of China	Focusing on research areas such as Chongming Dongtan (YS-3), with the greenhouse gas nitrous oxide, C-degrading enzyme- $\beta$ glucosidase (BG) of sediments, N-degrading enzyme-urease (UE), N-acetyl-amino-glucosidase (NAG), and lignin-degrading enzyme-polyphenol oxidase (PPO) as the research subjects, this project examines the spatial and temporal change features of emission fluxes of greenhouse gases, spatial and vertical distribution features of extracellular enzyme activity of sediments, and the influence of extracellular enzyme activity of sediments on the production of nitrous oxide gas in the wetland through field sampling, site observation, and laboratory culture and analysis. The research specifically involves: (1) the spatial and temporal change	Wang Dongqi	YS-3



## Migratory Bird Sanctuaries along the Coast of Yellow Sea-Bohai Gulf of China (Phase II)

S.N	University/ Research Institute	Project Description			Main Research Directions and Content	Project Responsible Person	S.N. of Proje ct Site
		Project Name	Project Number	Project Level			
					features of emission fluxes of greenhouse gases such as nitrous oxide; and (2) the influence of extracellular enzyme activity of sediments at the Yangtze River Estuary on the emission fluxes of greenhouse gases such as nitrous oxide. (BG) (UE) (NAG) (PPO)		
6	Fudan University	The Influence of Plant Invasion on Key Predation Processes in Salt Marsh Wetlands and Its Trophic Cascade Effects	31870414	National Natural Science Foundation of China	The research aims at (1) analyzing the differences in abundance and species composition of large predators between salt marshes of <i>Spartina alterniflora</i> . and <i>Bolboschoenoplectus marigueter</i> , and the influence of the invasion of <i>Spartina alterniflora</i> . on the abundance and species composition of large predators in salt marshes through field surveys; (2) studying the differences in the influence of large predators on the abundance, biomass, and diversity of benthic animals such as phytophagous crabs between salt marshes of <i>Spartina alterniflora</i> and <i>Bolboschoenoplectus marigueter</i> , and the influence of the invasion of <i>Spartina alterniflora</i> on the key predation processes in salt marshes; and (3) primarily studying the differences in the trophic cascade effects of predation on phytophagy and the growth of native and invasive plants between salt marshes of <i>Spartina alterniflora</i> and <i>Bolboschoenoplectus marigueter</i> .	He Qiang	YS-3
7	East China Normal University	The Response Mechanism of Typical Estuarine Wetland Ecosystems in the Yangtze River Delta under Multiple Stresses	32071609	National Key R&D Program	This research primarily involves: 1) the response of estuarine wetland vegetation to water-sediment dynamics and transformation of scouring/silting state; 2) the mechanism of algae bloom, ecological impact and control mechanism in water areas within the reclamation project area; 3) the influence of different control measures of <i>Spartina alterniflora</i> on estuarine wetland ecosystem and the prevention and control mechanism of secondary invasion; and 4) the synergy effect of multiple stresses at different spatial and temporal scales and the multi-stability response of the ecosystem.	Liu Quanxing	YS-3
8	East China Normal University	Research on the Influence of <i>Spartina alterniflora</i> . Invasion on Mercury Methylation Process in Sediments of Wetlands at the Yangtze River Estuary and Its Mechanism	41771508	National Natural Science Foundation of China	The research is composed of (1) the seasonal changes of total mercury and methylmercury content in the rhizosphere of typical vegetation types at Chongming Dongtan, namely <i>Spartina alterniflora</i> , <i>Phragmites communis</i> , and <i>Bolboschoenoplectus marigueter</i> ; and (2) the seasonal changes of total organic carbon and reduced sulfide -- acid-volatile sulfide (AVS) content in the rhizosphere of different plants.	Wang Yongjie	YS-3

## Migratory Bird Sanctuaries along the Coast of Yellow Sea-Bohai Gulf of China (Phase II)

S.N	University/ Research Institute	Project Description			Main Research Directions and Content	Project Responsible Person	S.N. of Proje ct Site
		Project Name	Project Number	Project Level			
9	East China Normal University	Effects of Renewal Process on the Development of Plant Communities in Salt Marsh Wetlands	31870405	National Natural Science Foundation of China	The research focuses on: the seed dispersal process of dominant species and soil seed bank pattern; the influence of the interspecific interaction on seed germination and its contribution to the renewal of natural populations; the influence of environmental stress and adult competition on seedling survival and growth; and the comprehensive analysis of the role of renewal stages in the development of plant communities in salt marsh wetlands.	Wang Chenghuan	YS-3
10	Institute of Eco- Chongming	Survey and Inventory of Biodiversity in Chongming	ECNU- IEC- 202001	Research Project of Shanghai Municipal Education Commission	The research intends to compile the biodiversity lists and generate the biological inventory of Chongming and complete the aerial survey of key ecological baseline points through historical data collection and supplementary surveys on the basis of the existing inventory of historic basic data. The biological inventory covers protozoa/micro-benthos in tidal wetlands and peripheral waters around islands; bryophytes; terrestrial vascular plants; aquatic and wetland seed plants; plankton; macrobenthos (rivers, lakes, and reservoirs; tidal wetlands and peripheral waters around islands); spiders (intertidal wetlands); insects; soil animals; fish (rivers, lakes, and reservoirs; tidal wetlands and peripheral waters around islands); amphibians; reptiles; birds; and beasts.	Liu Wenliang	YS-3
11	East China Normal University	The Influence of Simulated Warming on the Interspecific Competition Relationship between <i>Phragmites communis</i> and <i>Spartina alterniflora</i> in Salt Marsh Wetlands at the Yangtze River Estuary	31500392	National Natural Science Foundation of China	In the background of global climate change and biological invasion, this research project investigates the <i>Phragmites communis</i> and <i>Spartina alterniflora</i> in salt marsh wetlands at the Yangtze River Estuary by simulating the atmospheric warming using open-top chambers (OTCs) to explore how atmospheric warming influences the interspecific relationship between the two species.	Zhang Chao	YS-3
12	Fudan University	The Influence of Grazing on the Biological Functional Groups and Carbon-Oxygen Process of Salt Marsh Soil	31570513	National Natural Science Foundation of China	The influence of grazing on vegetation is largely achieved through its indirect influence on the soil. This research investigates the influence of grazing on the biological functional groups of salt marsh soil and the carbon-oxygen process of the ecological system in Chongming Dongtan Salt Marsh at the Yangtze River Estuary through field	Wu Jihua	YS-3

## Migratory Bird Sanctuaries along the Coast of Yellow Sea-Bohai Gulf of China (Phase II)

S.N	University/ Research Institute	Project Description			Main Research Directions and Content	Project Responsible Person	S.N. of Proje ct Site
		Project Name	Project Number	Project Level			
		and Its Mechanism			survey experiments and fenced controlled experiments, aiming at revealing its mechanism of influence in two aspects, namely plants above ground and siltation of sediments, and exploring the possible feedback of soil changes on plants above ground.		
13	East China Normal University	The Gambling Strategy and Physio-ecological Mechanism of Key Stages in the Life History of Clonal and Non-clonal Plants		National Natural Science Foundation of China	With interests in clonal and non-clonal plants, this research investigates the gambling strategy and physio-ecological mechanism for key stages in their life history. Some key theoretical issues concerning the plant gambling strategy are analyzed and verified with specific plants and experiments. Under the spatially and temporally homogeneous and heterogeneous habitat conditions, the main stages, sites, forms, and manifestations of the plant gambling strategy and the sequential relationship are studied. This research also examines the possible traits of the plant gambling strategy induced by human disturbance factors, as well as the gambling strategy performance of sexual reproduction and clonal growth behavior of clonal plants of different types under integrational and non-integrational conditions. The gambling strategy of clonal plants of the mixed growth type is comprehensively analyzed with multiple methods. The trade-offs between costs and contributions of the plant gambling strategy are analyzed, and the common approach applicable to both clonal and non-clonal plants is explored. The possible mechanism for the occurrence of the plant gambling strategy is studied from several perspectives.	Li Dezhi	YS-3
14	East China Sea Fisheries Research Institute	The Influence of <i>Spartina alterniflora</i> Invading Plant Communities on Benthic Food Webs and the Mechanism Thereof	31600334	National Natural Science Foundation of China	Aiming at the invasion of an alien plant <i>Spartina alterniflora</i> to salt marshes at the Yangtze River Estuary, this program applies the stable isotope, fatty acid and gastric content analysis methods to investigate the influence of its invasion to <i>Bolboschoenoplectus marigueter</i> , <i>Phragmites communis</i> , <i>Carex scabrifolia Steud.</i> and microalgae communities on the benthic food webs, and quantitatively analyze the changes in biological community structure, food source composition and feeding relationships. Moreover, it looks into the driving role of non-trophic effects on food webs through an analysis of environmental physical and chemical factors, and the driving process of nutritional effects through the stable isotope marking and tracing, to explore how plant invasion influences food webs.	Wang Sikai	YS-3
15	East China	Research on the Blue	19ZR1415	Research Project	The research focuses on the flux changes of SGD in the typical vegetation areas of	Zhang	YS-3

## Migratory Bird Sanctuaries along the Coast of Yellow Sea-Bohai Gulf of China (Phase II)

S.N	University/ Research Institute	Project Description			Main Research Directions and Content	Project Responsible Person	S.N. of Proje ct Site
		Project Name	Project Number	Project Level			
	Normal University	Carbon Flux to the Sea from Submarine Groundwater Discharge in Chongming Dongtan Wetland	300	of Shanghai Municipal Science & Technology Commission	Chongming Dongtan in different seasons (flood season: June-August, dry season: December-February). According to the actual characteristics of local rainfall, samples are taken in the dry season and wet season, respectively. The samples of groundwater and interstitial water are collected at three cross-sections in the north, south, and middle of different vegetation zones in the salt marsh wetlands of Chongming Dongtan, freshwater end members are collected in local near-shore well water, and continuous observations are performed at fixed points offshore. The fluxes of SGD-carried carbon (DIC, DOC, RDOC) into the sea at Chongming Dongtan are evaluated. The quantitative analysis of RDOC is principally obtained by finding the integral of the peak areas of relevant spectrum peaks on the 1D NMR spectral graph for the hard-to-degrade structures. The spatial and temporal changes of (DIC, DOC, RDOC) and geochemical parameters (nutrients, salinity, dissolved oxygen, etc.) in groundwater end members (including interstitial water) along the coastal salt marsh wetlands of Chongming Dongtan are analyzed.  By clarifying the extensive observation of typical cross-sections in Dongtan and the continuous observation technique under the tidal action, the fluxes of SGD-carried carbon (DIC, DOC, RDOC) to the sea in Chongming wetlands and the contribution of SGD-transported carbon to the offshore carbon pool are evaluated.	Fenfen	
16	Shanghai Normal University	Research on Risk Assessment and Robust Decision Making for Compounded Extreme Flood Disasters at the Yangtze River Delta: A Case Study of Shanghai	51611016 88-6	Scientific and Technological Developmen Project of Shanghai Meteorological Service Bureau	Estuary deltas and coastal cities are confronted with the serious threats of extreme storms and floods compounded by typhoons, rainstorms, high tide levels, and upstream flood discharge. An integrated atmosphere-ocean-land coupled numerical simulation system has been constructed to achieve the simulation of extreme flooding in Shanghai under a scenario of multiple disasters like "wind", "storm", "tide" and "flood occurring at the same time, validating the effectiveness of the coupling method and providing a set of feasible numerical simulation methods for the integrated simulation of compounded windstorm and flood. Under the influence of Typhoon Winnie (9711), the simulated inundation area (with a water depth >0.2 meters) was reduced by 62% compared with that before the upgrading of the embankment in 1998, indicating that the construction of coastal and river embankment facilities plays a critical role in the prevention of typhoon and flooding in Shanghai. The effective simulation of the compound extreme windstorm	Wen Jiahong	YS-3

## Migratory Bird Sanctuaries along the Coast of Yellow Sea-Bohai Gulf of China (Phase II)

S.N	University/ Research Institute	Project Description			Main Research Directions and Content	Project Responsible Person	S.N. of Proje ct Site
		Project Name	Project Number	Project Level			
					and flood can provide a reference for property insurance and future municipal planning.		
17	Anhui University	The Spatial and Temporal Dynamics of Gut Microbiota Complex of Hooded Crane ( <i>Grus Monacha</i> ) and Its Environmental Response Mechanism	31772485	National Natural Science Foundation of China	This research carries out the high-throughput sequencing of microbiota in the fecal samples of Hooded Crane ( <i>Grus Monacha</i> ) wintering in Shengjin Lake to analyze the gut microbiota structure and construct the core microbiota and the differences in the gut microbiota composition during different winters. The gut microbiota structure of Hooded Crane and their temporal and spatial change features are also explored to accumulate basic materials for further study of the winter ecology of Hooded Crane.	Zhou Lizhi	YS-3
18	East China Normal University	Research on Quantitative Identification of N <sub>2</sub> O Production Pathways and Regulation Mechanism in Estuary Tidal Flats	4167010241	National Natural Science Foundation of China	With tidal flats at the Yangtze River Estuary as the study area, this research discusses the influence of the sediment resuspension on the denitrification and anaerobic ammonium oxidation processes of overlying water with different salinity and flooding gradients and their microbial mechanisms through indoor simulation experiments using the 15N isotope tracing technology. The coupled nitrification-denitrification and coupled nitrification-anaerobic ammonium oxidation processes were analyzed, the contribution of the denitrification and anaerobic ammonium oxidation processes to denitrification in the estuary were estimated, and the ecological effects caused by the resuspension were further analyzed.	Hou Lijun	YS-3
19	East China Normal University	The Sediment Dynamics Process of Chongming Dongtan at the Yangtze River Estuary in Response to Windstorms	41806106	National Natural Science Foundation of China	Through the collection of historical topography, hydrology, and sediment data and autonomous high-frequency continuous observations, with the research methods of cluster analysis, wavelet analysis, EOF analysis, and Gao-Collins model, the research explores the daily, monthly, interannual, and interdecadal dynamical geomorphological process, and profoundly analyzes the connecting mechanism of cross-scale dynamical geomorphology and potential influencing factors of tidal flats at the estuary.	Wei Wen	YS-3
20	East China Normal	Exploring the Sediment Movements of Muddy	41576092	National Natural Science	To unveil the influence of windstorm events on water and sediment transport in tidal creeks of the coastal wetland, in the calm weather and stormy weather conditions	Yang Shilun	YS-3

## Migratory Bird Sanctuaries along the Coast of Yellow Sea-Bohai Gulf of China (Phase II)

S.N	University/ Research Institute	Project Description			Main Research Directions and Content	Project Responsible Person	S.N. of Proje ct Site
		Project Name	Project Number	Project Level			
	University	Coasts in the Delta during Windstorms		Foundation of China	(Typhoon Yagi and Rumbia), field observations of water and sediment data were conducted in a typical tidal creek at Chongmin Dongtan. The results indicated that the average wind speed offshore during the typhoon was 3~4 times higher than that in the calm weather with the effective wave height being seven to 7~15 times higher; the flats and tidal creeks in the forepart of the salt marsh have been severely eroded; the surface sediments of tidal flats have been coarsened by 1~2.1 times; the suspended sediment concentration has increased by 3~11 times; the unit-width sediment transport flux during the tidal cycle of tidal creeks has increased by 4~33 time; the unit-width net sediment transport has increased by 8~17 times. In windstorm weather, the sediment transport of tidal creeks exhibits the characteristics of “high input and high output”. Under the actions of wave attenuation, flow retarding and sediment trap of vegetation in tidal flats of the salt marsh, the unit-width sediment transport flux during the tidal cycle points to tidal flats of the salt marsh and facilitates the siltation of sediments in salt marsh flats.		
21	Beijing Normal University	Dynamic Monitoring and Evaluation of the Ramsar Site Protection and Recovery Project at Shandong Yellow River Delta National Nature Reserve		Technical consultancy contract	Dynamic monitoring is conducted for the Ramsar Site Protection and Recovery Project at the Yellow River Delta, covering dynamic changes of various ecosystem elements such as hydrology and water quality, soil, vegetation, and benthos. A biodiversity monitoring index system and evaluation methods are developed to evaluate the implementation effects of the biodiversity protection project.	Wang Andong, Cui Baoshan	YS-4
22	Beijing Normal University	The Ecological Restoration and Industrialization Technology for Typical Estuarine Wetlands in North China	2017YFC0505900	National Program on Key Basic Research Project of China		Bai Junhong	YS-4
23	Beijing Normal University	Soil Nitrogen Mineralization and Its Water & Salt Driving	51179006	General Project of National Natural Science	This research project takes the coastal wetland in the Yellow River Delta as the research subject. It systematically examines the temporal and spatial variation characteristics of soil nitrogen mineralization at the coastal salt marsh wetland under different water and	Bai Junhong	YS-4

## Migratory Bird Sanctuaries along the Coast of Yellow Sea-Bohai Gulf of China (Phase II)

S.N	University/ Research Institute	Project Description			Main Research Directions and Content	Project Responsible Person	S.N. of Proje ct Site
		Project Name	Project Number	Project Level			
		Mechanism at the Coastal Salt Marsh Wetland in the Yellow River Delta		Foundation of China	salt patterns, expounds the law in which the soil nitrogen mineralization rate varies with water and salt gradient, and explores the law in which wetland formation affects soil nitrogen mineralization; it analyzes the relationship between the soil nitrogen mineralization rate and environmental factors and physical and chemical soil properties at the wetland in the Yellow River Delta, so as to comprehensively diagnose the correlation between water and salt information and the soil nitrogen mineralization rate; it explains the effects of flooding frequency, water level, salinity and water-salt interaction on soil nitrogen mineralization, analyzes the mechanism with which soil microorganisms make short-term response and long-term adaptation to water & salt changes, and reveals the water & salt driving mechanism for soil nitrogen mineralization at the coastal wetland; it hence provides a scientific reference for the protection and restoration of the coastal wetland.		
24	Beijing Normal University	Technical Systems and Application on Ecological Water Demand Guarantee in the River-Lake-Marsh System	2017YFC0404500	National Program on Key Basic Research Project of China		Yang Zhifeng	YS-4
25	Beijing Normal University	A Dynamic Tradeoff Model for Wetland Ecosystem Services in the Yellow River Delta Driven by Freshwater Remediation Projects	51579012	National Natural Science Foundation of China (NSFC)	The freshwater remediation project for degraded wetlands in the Yellow River Delta, which is carried out annually since 2002 through water diversion from the Yellow River, has replenished important freshwater resources for wetlands, reshapes the hydrological regime of wetlands in the Yellow River Delta, and has a significant influence on the structure, service functions and key ecological processes of wetland ecosystems. This research highlights the central role played by the freshwater remediation project in driving the dynamic evolution of wetland ecosystem services. In the face of key scientific issues, namely the mechanisms of influence and tradeoff of the freshwater remediation project on the evolution of wetland ecosystem services, the approaches of GIS spatial overlay analysis, InVEST model simulation and structural equation model building will be adopted for a simulation analysis of the supply quantity and spatial distribution of dominant ecosystem services such as material production, water purification, climate regulation, flood storage, biological habitation, etc. It examines the	Yang Wei	YS-4

## Migratory Bird Sanctuaries along the Coast of Yellow Sea-Bohai Gulf of China (Phase II)

S.N	University/ Research Institute	Project Description			Main Research Directions and Content	Project Responsible Person	S.N. of Proje ct Site
		Project Name	Project Number	Project Level			
					inner mechanism of wetland ecosystem driving-pattern-services, clarifies the conversion and mutation thresholds for the evolution of various dominant ecosystem services in wetlands driven by the freshwater remediation project, develops a dynamic trade-off model among wetland ecosystem services, reveals the quantitative trade-off relationship among various wetland ecosystem services and their dynamic conversion patterns, and provides the theoretical and technical underpinnings for the comprehensive ecological management of wetlands in the Yellow River Delta Nature Reserve.		
26	Beijing Normal University	The Impact of Oil Production in the Bohai Rim Region on Wetland Birds Diversity and Their Habitats and Related Management Strategies			<p>This research project performs the primary task of studying the current situation of birds diversity and their habitats in the Bohai Rim oil production area and analyzing its time dynamics.</p> <p>This research focuses on coastal wetlands such as the Yellow River Delta wetland, Beidagang Wetland, and the Liao River Delta Wetland with relatively concentrated oil production activities in the Bohai Rim region. It examines and evaluates the current situation of bird's diversity and their habitats in the said regions by the methods of direct counting, transect survey, model analysis in combination with the literature data; it conducts multi-angle analyses on the dynamic changes of the habitats utilizing remote sensing images, and analyzes the relationship between such variations and artificial oil production facilities. These efforts aim to explore the impact of oil production activities on birds' diversity and their habitat or distribution.</p>	Zhang Zhengwang	YS-5
27	Beijing Normal University	Research on the Impact of Artificial Disturbance on the Habitat Utilization and Breeding of Waterbirds at the Bohai Gulf	31572288	National	With focus on the dominant species in the coastal wetlands of Bohai Gulf, i.e., Curlew Sandpiper ( <i>Calidris ferruginea</i> ), Black-tailed Godwit ( <i>Limosa limosa</i> ) and Kentish Plover ( <i>Charadrius alexandrinus</i> ), the long-term systematic ecological research aims to determine how to choose and utilize different types of habitats in the context of human disturbance, and whether human disturbance is the major cause to the very low success rate of Kentish Plover breeding locally. The findings of this research will provide an important basis for the conservation of waterbirds and their habitats at the Bohai Gulf.	Zhang Zhengwang	YS-6
28	Beijing Normal	Habitat Selection, Feeding Habit Composition, and	31801985	National	This research project researches Pied Avocet ( <i>Recurvirostra avosetta</i> ), a common breeding waterbird in the coastal wetland of Bohai Bay. It studies this bird's habitat	Lei Weipan	YS-6



## Migratory Bird Sanctuaries along the Coast of Yellow Sea-Bohai Gulf of China (Phase II)

S.N	University/ Research Institute	Project Description			Main Research Directions and Content	Project Responsible Person	S.N. of Proje ct Site
		Project Name	Project Number	Project Level			
	University	Breeding Success Rate of Pied Avocet ( <i>Recurvirostra avosetta</i> ) in Bohai Bay Wetland			selection, feeding ecology, and nest survival rate using satellite tracking, stable isotope technology, infrared trigger camera, and other technologies. It aims to explore the value of different types of constructed wetlands in maintaining the long-term survival of the breeding population of Pied Avocet. This study will furnish an important scientific basis for the protection of waterbirds and their habitat in Bohai Bay.		
29	Fudan University/ Beijing Normal University	The Migration Stability of Migratory Birds and Their Response to Environmental Changes: A Case Study of Two Species of Scolopacidae	31830089	Key Program of National Natural Science Foundation of China	Based on satellite tracking of individual behaviors, using methods like control experiments, mark recapture and model analysis, individual differences and interannual changes of migratory birds in migration activities such as time of migration, the research compares flyway and stopover decision to analyze the lagging effects of different experiences at the life history stages on migration activities, and response of migratory birds, and explore the stability of migratory patterns and maintenance mechanism.	Ma Zhijun/Zhang Zhengwang	YS-6
30	Beijing Normal University	Comprehensive Scientific Investigation of Nanpu Wetland in Luannan, Hebei Province	10000886		Through comprehensive scientific investigation, the species composition, distribution, habitat condition, and threat factors of fauna and flora species within the Luannan wetland are to be ascertained.	Zhang Zhengwang	YS-6/12
31	Beijing Normal University	Monitoring Project on Shorebirds in Key Coastal Wetlands Along the Yellow Sea Ecoregion			This research project investigates the dominant species, protected species, and habitat utilization methods of shorebirds, especially those in the East Asian–Australasian Flyway.	Zhang Zhengwang	YS-6
32	Beijing Normal University	Assessment of the Effect of Applying Herbicide Imazapyr in <i>Spartina alterniflora</i> Community on Salt Marsh Biodiversity	230200077		Supported by the local government, Paulson Foundation applied imazapyr to some 600 <i>mu</i> (40.02 ha) of <i>Spartina alterniflora</i> on the coastal mudflat of Nanpu Wetland to conduct weeding treatment. To further verify the safety of imazapyr, four sampling tests in the experimental treatment zones and the surrounding tidal flats are conducted in this research project. Benthic soil (sediment), macrobenthos, and spartina flora samples were collected respectively in the <i>Spartina alterniflora</i> sample plot sprayed with herbicide, <i>Spartina alterniflora</i> sample plot without herbicide, and empty sample plot without <i>Spartina alterniflora</i> . Birds diversity study is carried out. These efforts aim to explore the effects of the herbicide imazapyr on wetland biodiversity.	Lei Weipan	YS-6

## Migratory Bird Sanctuaries along the Coast of Yellow Sea-Bohai Gulf of China (Phase II)

S.N	University/ Research Institute	Project Description			Main Research Directions and Content	Project Responsible Person	S.N. of Proje ct Site
		Project Name	Project Number	Project Level			
33	Beijing Normal University	Identification of Important Habitats of Wetland Birds	23020008 3		Through historical data collection and on-site supplementary study, this research project aims to understand the distribution of typical wetland birds along the Bohai Sea and complete the spatial delimitation of critical habitats of wetland birds along the Bohai Sea. Efforts are made to study the species, quantity, residing area, and flyway of birds in Nanpu Wetland in their breeding, overwintering, and aestivating seasons, and to determine the methods, indicators, frequency for monitoring wetland birds.	Zhang Zhengwang	YS-6
34	Beijing Forestry University	Strategic Research Program on the Conservation and Management of China's Coastal Wetlands	23030009 5		The research analyzes the present state, trend of change and management problems of China's coastal wetlands; focuses on the strategies and priority actions for the conservation and management of China's coastal wetlands; and provides viable policy advice for decision-makers and effective management tools for business management units.	Lei Guangchun et al.	YS-6
35	Beijing Museum of Natural History	Study on the Mechanism of Birds Response to Urbanization and Human Activities in Beidaihe Coastal Area	31240047	National Natural Science Foundation of China (NSFC)	Driven by the actual need of protecting birds' habitat in the Beidaihe area, and basing on years of specific investigation and research, this study takes birds in the Beidaihe region as the research subject. It is underpinned by the animal ecology and ecological theory and adopts the secondary development technology method of geostatistics and GIS. This research project examines the temporal and spatial distribution characteristics of birds and the dynamic change characteristics of their suitable habitats under the background of different urbanization development levels, focusing on how birds respond to urbanization and human activities by their habitat selection. It establishes the key dynamic model of bird habitat response and makes a case analysis on the key species of <i>Charadriiformes</i> birds. Quantitative data support is hence furnished for decision-making on birds protection in the Beidaihe area.	Ni Yongming	YS-8
36	Institute of Disaster Prevention	Geological Process and Tourism Development Value of Laolongtou and Dashihe Estuaries in Qinhuangdao	20121177 5011	National Innovation and Entrepreneurship Training Project for College Students	The study of sea erosion landform and estuarine delta at Laolongtou and Dashihe estuaries in Qinhuangdao can assist college and university students in geological practice, enable them to learn more about river geological process and marine topographic features, and consolidate their professional knowledge; through the research, local tourism resources will be explored to boost local tourism and create economic value.	Zheng Qiliang	YS-9

## Migratory Bird Sanctuaries along the Coast of Yellow Sea-Bohai Gulf of China (Phase II)

S.N	University/ Research Institute	Project Description			Main Research Directions and Content	Project Responsible Person	S.N. of Proje ct Site
		Project Name	Project Number	Project Level			
37	Panjin Science Research Institute on <i>Phragmites Communis</i>	Study on Biological Features of <i>Suaeda Heteroptera</i> and the Formation and Protection of Red Beach			In recent years, <i>Suaeda Heteroptera</i> in various lands with different areas has died of unknown causes, and was on the edge of disappearance in 2001. Therefore, the research on the biological characteristics of <i>Suaeda Heteroptera</i> and the formation and protection of red beach was started, which was officially approved by the Science and Technology Bureau of Panjin in 2002. It was completed in cooperation with Shuangtai Estuary National Nature Reserve in Liaoning Province. In two years, seven experiments and field studies have been carried out, namely, "seed germination test of <i>Suaeda Heteroptera</i> with different salt concentrations, soil culture, sand culture, hydroponic culture, and different water management, nutrient fertilization and salt-resistant variety breeding with different salt concentrations". 2,507 field study data and 2,222 laboratory analysis data were obtained. The study concludes that the death of <i>Suaeda Heteroptera</i> was caused by both human and natural factors. These factors include embankment and road construction, aquaculture, salt, water, nutrients, temperature, light, etc.	Liang Shuyu	YS-10
38		Study on Sewage Purification in <i>Phragmites Communis</i> Wetland Ecosystem			This research project monitors the inlet and outlet water quality through pool planting experiment and field test research so that the artificially erected <i>Phragmites communis</i> wetland will meet the following requirements after sewage treatment: first, the treated water quality can meet the maximum allowable discharge concentration standard for class II pollutants in GB8978-1996 and the environmental quality criterion for surface water; second, the impact of pollutants on <i>Phragmites communis</i> growth is mitigated through reasonable water distribution scheme; third, soil pollution is reduced and the formation of swampy <i>Phragmites communis</i> fields are prevented by adopting sound irrigation methods; fourth, the accuracy of test data and the reliability of scientific research results are achieved by adopting advanced analytical instruments and means with reasonable technical route.	Wang Guosheng	YS-10
39		Protection and Restoration Construction plan for Panjin Coastal Wetland			This research project is compiled based on the advanced global experience and the research results of the Institute in many years. The plan integrates the wetland species conservation project, aquatic product breeding project, ecotourism project, wetland	Yang Guangjian	YS-10

## Migratory Bird Sanctuaries along the Coast of Yellow Sea-Bohai Gulf of China (Phase II)

S.N	University/ Research Institute	Project Description			Main Research Directions and Content	Project Responsible Person	S.N. of Proje ct Site
		Project Name	Project Number	Project Level			
					water conservancy construction project, and other engineering construction systems. It is a "low-carbon & heart-winning project". It is of great value for implementing the scientific outlook on development, conserving the ecological environment, protecting biodiversity, building a harmonious society, accelerating the development of <i>Phragmites communis</i> farms, and providing the experience for the protection and restoration of natural wetlands in China.		
40		Research and Demonstration on Comprehensive Development and Utilization of the <i>Phragmites communis</i> Fields			Putting equal emphasis on the cultivation and comprehensive development of <i>Phragmites communis</i> fields, the project creates a feasible way to improve <i>Phragmites communis</i> yield and comprehensive production benefit. It hence opens up the direction for the large-scale development of the <i>Phragmites communis</i> fields. The technology demonstration center carries out experiments, exemplary activities and introduces new varieties. The primarily selected model has been popularized and applied in 57,620 hectares (860,000 <i>mu</i> ) of <i>Phragmites communis</i> fields in the Panjin <i>Phragmites communis</i> area. In 2004, the application and R&D results were popularized and tracked in 1,340 hectares (20,000 <i>mu</i> ) of <i>Phragmites communis</i> fields at the Shengli branch of Yangquanzi <i>Phragmites communis</i> farm. <i>Phragmites communis</i> production rose by 16%, with an increased output value of RMB 768,000. The income of aquaculture grew by RMB 1.69 million with the net profit reaching RMB 1.13 million. The experimental, exemplary, and driving role of the model center has been brought into full play.	Tian Wenda	YS-10
41		Study on the Sustainably Increased Productivity of <i>Phragmites communis</i> Wetland			<i>Phragmites communis</i> Wetland ecosystem is composed of <i>Phragmites communis</i> and other hygrophytes, helophytes, aquatic animals and plants, microorganisms, and some other non-living materials, e.g., water, heat, light, and inorganic salts related to the above life forms. A dynamic equilibrium is located in a space that displays a range of functions and features. To change the productive capacity of <i>Phragmites communis</i> wetland, it is necessary to take comprehensive air-conditioning measures to change the ecological environment of the <i>Phragmites communis</i> wetland in favor of its growth and development, to achieve sustainable growth of <i>Phragmites communis</i> productivity. According to the investigation and analysis, the main factors that affect the productivity of Panjin <i>Phragmites communis</i> Wetland are water, fertilizer, soil, grass, and engineering control standards. We can regulate the irrigation period, as well as the water	Liu Shu	YS-10

## Migratory Bird Sanctuaries along the Coast of Yellow Sea-Bohai Gulf of China (Phase II)

S.N	University/ Research Institute	Project Description			Main Research Directions and Content	Project Responsible Person	S.N. of Proje ct Site
		Project Name	Project Number	Project Level			
					quantity and quality through experiments. Comprehensive measures such as weed control, rational fertilization, soil fertility improvement, physical and chemical properties of soil, and changes of predatory harvesting can continuously improve the ecological system of the <i>Phragmites communis</i> wetland and form a healthy circle between the <i>Phragmites communis</i> production and environment, thus continually increasing <i>Phragmites communis</i> production capacity.		
42		<i>Phragmites communis</i> Diseases and Insect Pest Investigation and Control in the Wetland of Liaoning Province			There are 108,000 hectares of <i>Phragmites communis</i> wetlands in Liaoning Province, of which 91,000 hectares are harvested. The natural wetland is inhabited by emergent plants and hygrophytes dominated by the <i>Phragmites communis</i> community. Known as the "Second Forest", the vast <i>Phragmites communis</i> field not only provides a lot of material wealth for people but also plays an important role in the ecological environment. With the increase of the cultivated <i>Phragmites communis</i> area and its yield, accompanied by the advance of the project on returning farmland to <i>Phragmites communis</i> field, the microclimate of the <i>Phragmites communis</i> community has changed. The diseases and pests on <i>Phragmites communis</i> have become increasingly serious year by year. It not only reduces the economic benefit but also substantially reduces the ecological function of the <i>Phragmites communis</i> wetland. To understand the types of diseases and insect pests in <i>Phragmites communis</i> wetlands and to find out the occurrence and growth laws of major diseases and insect pests, we have collected specimens, raised insects, and conducted field surveys after years of hard work. As a result, we have basically identified the main diseases and insect pests that occur in the <i>Phragmites communis</i> wetlands in Liaoning Province. Besides, we have also identified the types of diseases and insect pests occurring all year round, as well as the types of diseases and insect pests occurring sporadically and often causing more serious damage. Our work provides accurate and timely forecast information for <i>Phragmites communis</i> production.	Tan Yuci	YS-10
43		Study on Cultivation Techniques of the Halophyte <i>Suaeda</i> <i>heteroptera</i> in Liao River			Through the experiments on "sowing quantity, sowing method and sowing time of <i>Suaeda heteroptera</i> ", "effect of fertilization on growth of <i>Suaeda heteroptera</i> ", "irrigation frequency", "effect of intercropping on the growth of <i>Suaeda heteroptera</i> ", "picking fresh stem and leaf of <i>Suaeda heteroptera</i> ", "effect of soil salt content on	Liang Shuyu	YS-10

## Migratory Bird Sanctuaries along the Coast of Yellow Sea-Bohai Gulf of China (Phase II)

S.N	University/ Research Institute	Project Description			Main Research Directions and Content	Project Responsible Person	S.N. of Proje ct Site
		Project Name	Project Number	Project Level			
		Delta			growth of <i>Suaeda heteroptera</i> ", etc. a great deal of investigation and laboratory analysis data were obtained. The project plays an important guiding role for Panjin and other coastal areas and is critical in protecting the ecological environment and promoting the sustainable development of the regional economy. Its economic, social, and ecological benefits are of great significance with an immense application prospect.		
44		Study on the Model of Integrated High-efficiency Breeding and Circular Economy in the <i>Phragmites communis</i> Field			Based on the basic engineering conditions of the Panjin <i>Phragmites communis</i> Wetland, the project made full use of land, light, and water resources, scientifically and rationally dropping crabs, fishes, and shrimps. For the first time in China, our project promoted the ecological agriculture model of " <i>Phragmites communis</i> -crab-fish-shrimp", under which the energy flow and logistics are combined to achieve the goal of recycling and self-use. This research project facilitated the healthy development of the wetland economy, increased the comprehensive production capacity of the wetland and enabled the green and environment-friendly industrial chain of the ecological breed model. This research project provided a new way for speeding up the development of the <i>Phragmites communis</i> field economy in China, enriching the theory of ecological agriculture technology and improving the economic, social, and ecological benefits of <i>Phragmites communis</i> fields.	Wang Delin	YS-10
45		Study on the Application of Ecological Slope Protection in Lianghuai River Regulation Project in Grand Canal			Under the principles of environmental management, ecological priority, reasonable economy, and sustainable development, this research project aims to reinforce the dikes, clear the water, beautify the environment, and promote the ecological environment. This research project explores how to use <i>Phragmites communis</i> to effectively protect the ecological slope of the riverbank, which can maintain the stability of the riverbank without changing the original natural ecological environment. Therefore, the construction of channels and rivers can be much more environment-friendly, providing suitable habitats for bacteria, insects, birds, fish, and other species. This research project also helps to maintain and improve the ecological landscape along the riverbank, to foster the healthy cycle of the ecological environment of channels and riverbanks.	Wang Xiyou	YS-10
46	Panjin Science	Tidal Wetland Vegetation Restoration and Research			In this research project, a diversified, multi-level, and three-dimensional ecological breed model was established, in which the restoration of wetland vegetation (i.e.,	Sun Dechao	YS-10

## Migratory Bird Sanctuaries along the Coast of Yellow Sea-Bohai Gulf of China (Phase II)

S.N	University/ Research Institute	Project Description			Main Research Directions and Content	Project Responsible Person	S.N. of Proje ct Site
		Project Name	Project Number	Project Level			
	Research Institute on <i>Phragmites communis</i> Wetland	and Development on Mixed Culture of Crabs and Shrimps			<i>Phragmites communis</i> ) was the primary task and aquaculture the secondary task. Through the establishment of the surface water cycle, the water exchange capacity and turnover rate are increased. Some agricultural measures are taken to accelerate the restoration of plant communities and increase their productivity, thus achieving the full restoration of the structure and function of the tidal wetlands. In the meanwhile, the prawns and crabs feed on plankton and benthic organisms in the <i>Phragmites communis</i> wetlands, and their excreta are the organic fertilizer of the <i>Phragmites communis</i> , which are mutually beneficial and form a healthy ecological economic chain.		
47		Tidal Wetland Vegetation Restoration and Research and Development on Mixed Culture of Crabs and Shrimps			The study on the restoration of wetland vegetation and mixed culture of crab and shrimp is a diversified, multi-level, three-dimensional ecological culture model, in which the restoration of wetland vegetation is the principal part and the aquaculture is the secondary part. Prawns and crabs feed on plankton and benthic organisms in <i>Phragmites communis</i> wetland, and their excreta are the organic fertilizer of <i>Phragmites communis</i> , forming a benign eco-economic chain. Therefore, in the context of rapid technological advances, it is imperative to fully excavate the comprehensive productivity of tidal wetlands, restore the natural mudflat ecosystem, boost biodiversity, and foster new economic growth drivers.	Jin Ming	YS-10
48		Study on Vegetation Restoration Techniques for Estuarine Wetlands			Based on the key technologies for estuarine wetland vegetation restoration, this research project looks into the construction techniques of <i>Phragmites communis</i> and <i>Suaeda heteroptera</i> communities, and establishes the complex wetland ecosystem of <i>Phragmites communis</i> community and <i>Suaeda heteroptera</i> community. Through a series of measures such as hydraulic engineering construction, land formation, water and salt control, we create environmental conditions suitable for the growth of <i>Phragmites communis</i> and <i>Suaeda heteroptera</i> , increase the vegetation coverage of estuarine wetlands, and improve the ecological environment. A three-dimensional eco-circular economic model of fish and crab culture in estuarine wetland is established to improve the comprehensive utilization capacity of estuarine wetland and maximize its economic, social and ecological benefits.	Sun Dechao	YS-10
49		Study on Vegetation			Through the construction of the hydraulic engineering, a new model of irrigation-salt	Liu Yan	YS-10

## Migratory Bird Sanctuaries along the Coast of Yellow Sea-Bohai Gulf of China (Phase II)

S.N	University/ Research Institute	Project Description			Main Research Directions and Content	Project Responsible Person	S.N. of Proje ct Site
		Project Name	Project Number	Project Level			
		Restoration Techniques for Estuarine Wetlands			drainage suitable for estuarine wetlands is put forward on the basis of salt pressing and salt washing, which is a new model of cultivating <i>Phragmites communiss</i> by deep tillage, shallow transplanting and salt washing with fresh water, so as to achieve a large-scale restoration of <i>Phragmites communis</i> community in estuarine wetland. The vegetation restoration of <i>Suaeda heteroptera</i> community in the degenerated estuarine wetland is carried out by means of brackish water irrigation and freshwater-tidal alternation. In order to realize the large-scale restoration of <i>Suaeda heteroptera</i> community in Guangtan estuarine wetlands, the model of diffusion and propagation is studied by using hydrologic regulation and soil improvement measures.		
50		Research on Vegetation Restoration and Mixed Culture of Crab and Shrimp in Tidal Wetlands			Because of the high salt content in the estuarine wetland soil, the wetlands have low productivity and low economic benefit, and the biodiversity of the wetland is sharply reduced as well. Therefore, effective recovery measures should be taken according to the actual situation. In this model research, <i>Phragmites communis</i> and <i>Suaeda heteroptera</i> are selected as the vegetation restoration plants in the estuarine wetland. According to the biological characteristics of <i>Phragmites communis</i> and <i>Suaeda heteroptera</i> , different experimental treatment areas are established to study the vegetation restoration models. First, we need to increase the vegetation coverage of the estuarine wetlands and improve the physical and chemical properties of the soil and water quality. Second, we need to make the plant communities assume a positive succession through optimization models such as artificial regulation. Third, we need to establish a healthy and stable ecosystem, which provides shelter and plant bait for fish and crabs, and habitats for birds and other wetland organisms, to enrich biodiversity.	Song Honghai	YS-10
51		Study on Degradation Mechanism and Vegetation Restoration Techniques for Coastal Vetlands in Liao River Delta			This research project, which is dedicated to the field of resources and environmental science and technology, explores the evolution trend and degradation mechanism of different types of coastal wetlands in the Liao River Delta through remote sensing image interpretation, block comparison and source resolution. According to the research about the indoor pot and field experiments of <i>Phragmites communis</i> and <i>Suaeda heteroptera</i> , the internal relations between the growth and development of <i>Phragmites communis</i> and <i>Suaeda heteroptera</i> are clarified, and the key techniques of vegetation restoration of <i>Phragmites communis</i> and <i>Suaeda heteroptera</i> are grasped. It improves the	Sun Dechao	YS-10



## Migratory Bird Sanctuaries along the Coast of Yellow Sea-Bohai Gulf of China (Phase II)

S.N	University/ Research Institute	Project Description			Main Research Directions and Content	Project Responsible Person	S.N. of Proje ct Site
		Project Name	Project Number	Project Level			
					comprehensive benefit of Liao River Delta coastal wetlands, provides theoretical basis and practical techniques for the restoration of wetland vegetation in Binhai, and plays a demonstration and driving role.		
52		Study on Vegetation Restoration Techniques for Estuarine Wetlands			At present, the Panjin Estuarine Wetland covers an area of 20,900 hectares, and the Liao River Estuary Wetland accounts for 80% of the area of the Panjin Estuarine Wetland. The estuarine wetland expands year by year due to the influence of river transportation and deposition and the change of ocean tide. Therefore, the estuarine wetland has a wide space for development and utilization, and is an important resource for establishing wetland eco-circular economy model, coordinating the economic, ecological and social benefits, and achieving healthy and rapid development. The estuarine wetland is a precious resource that Panjin is endowed with. It is constrained by various conditions. At present, the overall level of development and utilization is not high; the competitiveness is not intense; the biodiversity is low; and the ecosystem is fragile. Many estuarine wetlands only have some scattered <i>Phragmites communis</i> and <i>Suaeda heteroptera</i> , and are barren. It is imperative to take scientific, reasonable effective measures to address the situation. Making full use of the natural resources of the estuarine wetlands and unleashing the comprehensive productivity of the estuarine wetlands can help restore the natural ecosystem and functions of the estuarine wetlands and boost biodiversity. It is very important to create a new economic growth driver to foster ecological economy.	Yu Changbin	YS-10
53		Study on Degradation Mechanism and Vegetation Restoration Techniques for Coastal Wetlands in Liao River Delta			The coastal wetland of Liao River Delta is a typical coastal wetland in China. It is a compound delta formed by the alluvium and deposits from rivers flowing into the sea, such as Liao River, Daling River and Xiaoling River, with an area of about 315,000 ha, and the area of primary wetland is about 22,3000 ha. The Liao River Delta boasts unique coastal wetland landscapes, with a vast area of <i>Suaeda heteroptera</i> community, which forms the "Red Beach" and the world's largest coastal <i>Phragmites communis</i> wetland. Therefore, it has extremely high economic value and ecological environment value. The coastal wetland in Liao River Delta is a precious resource that Panjin is endowed with. However, due to various constraints, the overall level of development and utilization is not high; the competitiveness is not intense; the biodiversity is low;	Yu Changbin	YS-10

## Migratory Bird Sanctuaries along the Coast of Yellow Sea-Bohai Gulf of China (Phase II)

S.N	University/ Research Institute	Project Description			Main Research Directions and Content	Project Responsible Person	S.N. of Proje ct Site
		Project Name	Project Number	Project Level			
					and the ecosystem is fragile. Some areas remain barren. Therefore, it is urgent to take scientific, reasonable effective measures to address the situation. This research is of great significance to improving the natural ecosystem function of coastal wetlands in the Liao River delta, boosting biodiversity, and creating a new economic growth driver to foster ecological economy.		
54		Integrated Research and Promotion of Ecological Restoration Techniques for Panjin Coastal Wetland			According to the situation of the degradation of coastal wetlands in Panjin, the degraded <i>Phragmites communis</i> wetland and degraded <i>Suaeda heteroptera</i> wetland are selected as the restoration subjects in this study. The integrated research and extension of ecological restoration techniques for Panjin coastal wetland are carried out by adopting the measures of wetland habitat restoration, biological restoration and ecosystem function restoration. This research implements the major measures and practical actions proposed by the 18 <sup>th</sup> CPC National Congress that "treasure nature more consciously, protect the ecosystem more actively, strive to usher in a new era of socialist ecological progress", "work hard to build a beautiful country, and achieve lasting and sustainable development of the Chinese nation". It is a sure choice to increase the wetland vegetation coverage rate, enhance the wetland ecosystem function, and boost the wetland biodiversity. It is an urgent need to promote regional ecological security as well as economic and social development. This research can provide a model and a demonstration technology for the ecological restoration of degraded wetlands. It can give full play to an important demonstration and leading role in the national restoration and protection of degraded wetlands.	Li Dong	YS-10
55		Study on Degradation Mechanism and Vegetation Restoration Techniques for Coastal Wetlands in Liao River Delta			In this research, remote sensing image interpretation, block comparison and source apportionment are used to analyze the evolution trend and degradation mechanism of coastal wetlands in the Liao River delta. Based on the degradation mechanism, the laboratory and field experiments of <i>Phragmites communis</i> and <i>Suaeda heteroptera</i> are conducted, to figure out the internal relationship between environmental factors such as salinity and water and the growth and development of <i>Phragmites communis</i> and <i>Suaeda heteroptera</i> , so as to obtain key techniques for vegetation restoration of <i>Phragmites communis</i> and <i>Suaeda heteroptera</i> and provide technical support for wetland restoration in Binhai. This research focuses on a novel subject, with a clear goal and	Li Dong	YS-10

## Migratory Bird Sanctuaries along the Coast of Yellow Sea-Bohai Gulf of China (Phase II)

S.N	University/ Research Institute	Project Description			Main Research Directions and Content	Project Responsible Person	S.N. of Proje ct Site
		Project Name	Project Number	Project Level			
					feasible technical scheme.		
56		Integrated Research and Promotion of Ecological Restoration Techniques for Panjin Coastal Wetland			The project involves the field of Resources and Environmental Science and Technology. Through field investigation and laboratory analysis, the main driving factors of the degradation of Panjin coastal wetland are identified. Research on the application of wetland ecological restoration techniques by comprehensive application of wetland ecological restoration, biological restoration and ecosystem function restoration techniques, solves the problems of uneven substrate, uneven water distribution, heavy salinity of soil, degradation of vegetation, pollution of rivers flowing into the sea, reduction of biodiversity, reduction of comprehensive productivity and decline of ecosystem function. The research results on ecological restoration techniques are integrated and extended.	Wang Jinshuang	YS-10
57		Research and Application of High-yield and High-efficiency Production Model and <i>Phragmites communis</i> Wetland Protection Techniques			According to the current situation of <i>Phragmites communis</i> industry in China, this research project employs the principles of ecology, engineering, botany and economics to break through the technical barriers that restrict the development of <i>Phragmites communis</i> industry. It also establishes a high-yield high-efficiency three-dimensional production model, to protect the <i>Phragmites communis</i> wetland resources and boost the <i>Phragmites communis</i> industry efficiency, as well as the income of managers and workers. It plays the role in leading, driving and demonstrating the leap from underdeveloped areas to developed areas, which is of great significance to accelerating the overall construction of a moderately prosperous society.	Yu Changbin	YS-10
58		Study on Remote Sensing Assessment and Integrated Management Techniques for the Coastal Buffer Area in Liaodong Bay			This research project echos what the CPC put forward at the 18th CPC National Congress: "Promoting ecological progress is a long-term task of vital importance to the people's wellbeing and China's future. Faced with increasing resource constraints, severe environmental pollution and a deteriorating ecosystem, we must raise our ecological awareness of the need to respect, accommodate to and protect nature. We must give high priority to making ecological progress and incorporate it into all aspects and the whole process of advancing economic, political, cultural, and social progress, work hard to build a beautiful country, and achieve lasting and sustainable development of the Chinese nation". It is imperative to promote regional ecological and	Wang Jinshuang	YS-10

## Migratory Bird Sanctuaries along the Coast of Yellow Sea-Bohai Gulf of China (Phase II)

S.N	University/ Research Institute	Project Description			Main Research Directions and Content	Project Responsible Person	S.N. of Proje ct Site
		Project Name	Project Number	Project Level			
					environmental security, as well as economic and social development. It is of great historical and practical significance to enhancing the self-purification capacity, ecosystem service function and biodiversity of the buffer area in Liaodong Bay, as well as ensure its marine ecological security. Furthermore, this research provides a model and techniques for the ecological restoration of the National Wetland Buffer Area, and they play an important exemplary and leading role and are expected to be widely applied.		
59	Panjin Forestry Technology Promotion Station, Panjin Wetland Science Institute	Popularization of Vegetation Restoration Techniques for Estuarine Wetlands			In this research project, <i>Phragmites communis</i> and <i>Suaeda heteroptera</i> are selected as the vegetation restoration plants in the estuarine wetland of Liao River. In order to restore the ecological function of the Liao River Estuary Wetland, the hydraulic engineering facilities, water diversion and salt washing, artificial planting of <i>Phragmites communis</i> and <i>Suaeda heteroptera</i> , and artificial construction of biological community are adopted. According to the biological characteristics of <i>Phragmites communis</i> and <i>Suaeda heteroptera</i> , and the environmental conditions of the project area, four demonstration areas are established to promote the vegetation restoration techniques for the estuarine wetland. Through a series of control measures such as scientific planting of <i>Phragmites communis</i> and <i>Suaeda heteroptera</i> in the demonstration area, the vegetation coverage of the wetland is increased, the physical and chemical properties of soil and water are improved, and the plant community is in a positive succession. At the same time, a healthy and stable ecosystem is established to provide shelter and plant bait for fishes, crabs and other wetland organisms such as birds, to enrich the biodiversity. As a result, it achieves both ecological development and sustained economic growth, promotes the coordinated, healthy, and rapid development of the ecological environment and economy of the Liao River Estuary Wetland, maximizes the economic, ecological and social benefits of the Liao River Estuary Wetland, and provides practical techniques for vegetation restoration in the estuarine wetlands of Liao River.	Dong Bo	YS-10
60	Oceans and Fisheries Bureau of Panjin	Liao River Estuary Restoration Project			The general goal of the restoration of the Liao River Estuary is to gradually restore the structure and function of the degraded wetland ecosystem by adopting appropriate biological, ecological and engineering techniques, and ultimately achieve the self-sustaining state of the wetland ecosystem. But for different degraded wetland ecosystems, their emphases and requirements are different. The comprehensive		YS-10

## Migratory Bird Sanctuaries along the Coast of Yellow Sea-Bohai Gulf of China (Phase II)

S.N	University/ Research Institute	Project Description			Main Research Directions and Content	Project Responsible Person	S.N. of Proje ct Site
		Project Name	Project Number	Project Level			
					ecological restoration project on the Liao River Estuary in Panjin is guided by the principle of "maintaining the natural balance of the wetland system, fully restoring and protecting wetland functions and wetland biodiversity, and promoting the sustainable utilization of resources". According to the actual situation of the west coast of Liao River Estuary in Panjin, different protection, restoration and mudflat restoration measures are taken according to local conditions, so as to strengthen the protection, observation, tourism, publicity, education, etc. This research project maximizes the protection and restoration of the integrity of the Liao River Estuary Wetland Ecosystem and its ecosystem services, with a view to protecting wetland biodiversity and the important flora and fauna resources within wetlands, and preventing the destruction of vegetation and the decline of animal populations. It ensures the balance of nature of regional ecosystems, and restores and restores wetland areas, to explore ways of rational utilization of natural resources and environment. It gradually restores the ecological environment quality of the Liao River Estuary Wetland, maintains the integrity and stability of the wetland reserve ecosystem, and finally achieves the ecological goal of "Beautiful Wetland City of Panjin".		
61		Study on the Maximum Capacity of Chinese Pit Viper ( <i>Gloydius shedaoensis</i> ) on Snake Island			Based on the study of Chinese Pit Viper population size, predation rate, energy metabolism and edible birds in Snake Island, the maximum capacity of Chinese Pit Viper in Snake Island is calculated.		YS-11
62		Study on Biodiversity of Laotieshan National Nature Reserve			The species of plants, birds, mammals, amphibians and reptiles in the reserve are investigated.		YS-11
63		Study on Monitoring System of Chinese Pit Viper's Population Dynamics of Snake Island			VORTEX model is used to predict the development trend and extinction probability of Chinese Pit Viper in the Snake Island after 100 years.		YS-11

## Migratory Bird Sanctuaries along the Coast of Yellow Sea-Bohai Gulf of China (Phase II)

S.N	University/ Research Institute	Project Description			Main Research Directions and Content	Project Responsible Person	S.N. of Proje ct Site
		Project Name	Project Number	Project Level			
64		Sample Survey on Population and Habitat of Chinese Pit Viper in Snake Island			Based on the population survey of six gullies in Snake Island, the snake population in the entire island is estimated.		YS-11
65		Insect Diversity Survey in Laotieshan National Nature Reserve in Snake Island, Liaoning			The insect background in the reserve is investigated; specimens are collected; and a catalog of insect diversity is made		YS-11
66	Wetlands International	Survey of Waterbirds in the Yellow Sea-Bohai Gulf			Wetlands International conducts annual surveys on waterbirds in the Yellow Sea-Bohai Gulf.		YS-11
67	Fudan University	Study on Migration Ecology of Shorebirds: Food Source, Composition and Energy Accumulation	31772467	National	Research interests: Avian ecology. Investigate the food composition of major shorebirds in their migratory stopovers in the EAAF; compare the relationship between the food composition of shorebirds and their feeding methods and characteristics of feeding organs. Study on Energy Accumulation Pattern of Shorebirds in Yalujiang Estuary Wetland	Ma Zhijun	YS-12
68	Fudan University	Influence of Changes in Food Resources in Roosting Sites on Food Utilization, Energy Accumulation and Activity of Shorebirds	31572280	National	Research interests: Avian ecology. Two threatened birds, Great Knot and Bar-tailed Godwit, are taken as the study subject, to discuss the effects of niche differentiation and resource competition on the food utilization and energy accumulation of the sexual dimorphism birds, and analyze the adaptability of male and female individuals to the changes of food resources.	Ma Zhijun	YS-12
69	Fudan University	Survey on Shorebirds Migrating in Spring in the Yellow Sea-Bohai Gulf Region of China		International Cooperation Program	This research conducts a comprehensive survey of shorebirds migrating in spring in the Yellow Sea-Bohai Gulf Region of China for understanding the current situations of species, quantity and distribution of shorebirds; and compares the results with those of a survey undertaken ten years ago, in order to analyze the population change trends of migratory shorebirds in the Yellow Sea region, and provide evidence for understanding the population changes of migratory shorebirds in East Asia-Australasia.	Ma Zhijun	YS-12

## Migratory Bird Sanctuaries along the Coast of Yellow Sea-Bohai Gulf of China (Phase II)

S.N	University/ Research Institute	Project Description			Main Research Directions and Content	Project Responsible Person	S.N. of Proje ct Site
		Project Name	Project Number	Project Level			
70	Fudan University	Protective Effect of Birdwatching on Birds and Their Habitats in Estuaries and Coastal Areas of China		International Cooperation Program	This research project collects basic data on bird-watching activities in major estuaries and coastal areas of the mainland, to understand the history and current situation of bird-watching activities, and identify the current problems and challenges faced by bird-watching organizations and bird conservation activities. The survey explores the possible future development of bird-watching activities and bird conservation, to strengthen communication between bird communities and enhance the role of bird-watchers in bird conservation. The survey also promotes the development of bird-watching activities and bird conservation in China, and explores the role of bird-watching activities in conservation of birds and their habitats in the major estuaries and coastal areas of Mainland China.	Ma Zhijun	YS-12
71	Nanjing Normal University	<i>Ecological Restoration Project of Gushan Phragmites communis Field in Yalujiang Estuary Wetland National Nature Reserve of Dandong Feasibility Study Report and Environmental Impact Assessment Work Plan</i>			The project carries out comprehensive ecological restoration and ecological construction in the Gushan Phragmites communis Field, to fully restore and enhance the ecosystem services of the Yalujiang Estuary Wetland in Dandong. It aims to construct a harmonious wetland eco-civilization demonstration site, which has the functions like wetland ecological conservation, wetland ecological engineering demonstration, wetland culture exhibition and wetland eco-tourism.		YS-12
72	WWF and Great Yellow Sea Project Office	Demonstration of Ecosystem-based Management of Coastal Wetland at the Yalujiang Estuary		International Cooperation Program	Scientific research activities: the conceptual model is improved through the surveys on intertidal benthic communities (primary) and birds (secondary), according to the survey results, with reference to relevant literature. Management practices: after the formulation of the <i>Rules for Ongoing Monitoring of Coastal Wetland Ecosystems at the Yalujiang Estuary</i> , and building of an information base that can reflect the dynamic changes of ecological systems, this research monitors the level of harmony between human activities and the ecological environment of wetland in a real-time manner, determines the scientific objectives of management, meets the needs of economic activities of human beings to a maximum extent while ensuring the integrity of the food chain in coastal wetlands at the Yalujiang Estuary; representative areas are selected as	WWF	YS-12

Migratory Bird Sanctuaries along the Coast of Yellow Sea-Bohai Gulf of China (Phase II)

S.N	University/ Research Institute	Project Description			Main Research Directions and Content	Project Responsible Person	S.N. of Proje ct Site
		Project Name	Project Number	Project Level			
					experimental zones, adaptive management plans are developed and the implementation and evaluation thereof are organized.		



**Annex File 12 Excerpts of regulations and provisions**

**(1) *Constitution of the People's Republic of China***

Article 9 All mineral resources, waters, forests, mountains, grasslands, unreclaimed land, tidal flats and other natural resources are owned by the State, that is, by the whole people, with the exception of the forests, mountains, grasslands, unreclaimed land and tidal flats that are owned by collectives under the law.

The State shall ensure the rational use of natural resources and protects rare animals and plants. No entity or individual is allowed to appropriate or destroy natural resources by any means.

Article 22 The State shall protect sites of scenic and historical interest, valuable cultural monuments and relics and other significant items of historical and cultural heritage.

Article 26 The State shall protect and improve the living environment and ecological environment, and prevents and controls pollution and other public hazards.

**(2) *Water Law of the People's Republic of China***

Article 9 The State shall protect water resources and adopt effective measures to preserve vegetation, plant trees, grow grass, protect water sources, prevent and control soil erosion and water pollution, and improve the ecological environment.

**(3) *Wild Animal Conservation Law of the People's Republic of China***

Article 5 The State shall conserve wild animals and their habitats. The people's governments at or above the county level shall formulate relevant plans and measures for the conservation of wild animals and their habitats, and shall include funds for the conservation of wild animals into their budgets.

Article 6 All organizations and individuals shall have the obligation to conserve wild animals and their habitats. It is prohibited to illegally hunt wild animals or destruct their habitats.

Article 10 The State shall implement classified and graded conservation of wild animals.

The State shall place the rare and endangered wild animals under priority conservation. National key protected wild animals are divided into first/second-class protected wild animals. The List of National Key Protected Wild Animals shall be developed by the competent Department of Wild Animal Conservation of the State Council after organization of scientific evaluation, and adjustments to the list shall be determined every five years according to the results of evaluation. The List of National Key Protected Wild Animals shall be reported to the State Council for approval and publication.

#### ***(4) Environmental Protection Law of the People's Republic of China***

Article 17 The people's governments at all levels shall take measures to protect and prohibit any damage to the regions with various types of typical natural ecosystems, regions with a natural distribution of rare or endangered wild animals or plants, regions with important water sources protected, natural relics such as geological structures of great scientific and cultural values, famous regions where karst caves or fossil deposits are distributed, glaciers, volcanoes, hot springs, cultural relics, and ancient and precious trees.

Article 19 In the development and utilization of natural resources, the development shall be rational to protect biodiversity and ecological security, and the relevant ecological protection and restoration management plans shall be formulated and implemented pursuant to the law.

Article 23 In urban and rural construction, the characteristics of the local natural environment shall be considered, vegetation, waters and natural landscapes shall be protected, and the

construction and management of gardens, green land and scenic spots and historic sites in urban areas shall be strengthened.

***(5) Regulations of the People's Republic of China on Nature Reserves***

Article 4 The State shall incorporate the development plan of nature reserves into the national economic and social development plan by adopting economic and technological policies and measures favorable to the development of nature reserves.

Article 18 Nature reserves can be divided into the core area, buffer area and experimental zone. The intact natural ecosystems and the areas where rare and endangered fauna and flora species are concentrated within nature reserves shall be delimited as the core area, which no entity or individual is allowed to enter; nor shall scientific research activities be conducted in this area except for approval in accordance with Article 27 of these Regulations. An area surrounding the core area may be designated as the buffer area, where only scientific research and observation are allowed. The area surrounding the buffer area may be designated as the experimental zone, where activities such as scientific experiment, educational practice, visit, tourism and the domestication and breeding of precious, rare and vanishing wildlife species may be carried out. The people's government that initially approves to establish the nature reserve may designate a peripheral protection zone of a certain area at the periphery of the nature reserve if deemed necessary.

***(6) Regulations of the People's Republic of China on Wild Plants Protection***

Article 9 The State shall protect wild plants and the environment for their survival. No entity or individual shall illegally collect wild plants or destroy the environment for their survival.

Article 11 In the regions with natural concentrated distribution of national and local key protected wild plants, nature reserves shall be established in accordance with the provisions of relevant laws and administrative regulations.

Article 14 The administrative department of wild plants and relevant entities shall take rescue measures for national and local key protected wild plants whose growth is threatened, to protect or restore the environment for their survival, establish breeding bases and seed banks if necessary, or take ex-situ conservation measures.

***(7) Regulations of the People's Republic of China on the Protection of Terrestrial***

***Wild Animals***

Article 8 Competent departments of wild animal administration of the people's governments at or above the county level shall bring together and coordinate all possible social actors and adopt biological engineering and technical engineering measures to maintain and improve the living environment of wild animals and to protect and develop wild animal resources. No entity or individual shall damage the living and breeding areas or the living conditions of national key protected wild animals by the State or local authorities.

***(8) Marine Environment Protection Law of the People's Republic of China***

Article 20 The State Council and the coastal local people's governments at all levels shall take effective measures to protect mangroves, coral reefs, coastal wetlands, islands, bays, estuaries, important fishery waters and other typical and representative marine ecosystems, the regions with a natural concentrated distribution of rare and endangered marine biologies, the habitats of marine organisms having important economic value, and the marine historic relics and natural landscapes having great scientific and cultural significance.

**(9) *Regulations on Scenic and Historic Areas***

Article 24 The landscape and natural environment in the scenic and historic areas shall be strictly protected based on the principle of sustainable development and shall not be destroyed or changed without authorization.

Administrative agencies for scenic and historic areas shall establish and improve the management systems for protection of scenic and historic resources.

Inhabitants and tourists within scenic and historic areas shall protect the scenery, waters, forests, grass and vegetation, wild animals and various facilities.

Article 25 Administrative agencies for scenic and historic areas shall investigate and identify important landscapes within the scenic and historic areas, and develop appropriate measures for protection.

**(10) *Regulations of Shanghai Municipality on Environmental Protection***

Article 15 In organizing the preparation of the municipal and each district's master plan and master plan for land use, the municipal and district people's governments shall, according to the ecological and environmental conditions of each administrative region, designate ecological red lines in different areas, such as key ecological function areas (including drinking water source conservation zones, nature reserves, key habitats of wild animals and key wetlands), ecologically and environmentally sensitive and fragile areas, establish an ecological red line system, and conduct classified and graded control and strict protection.

The preparation of relevant municipal regulatory plans shall comply with the control requirements for ecological red lines.

Article 18 The Municipality shall establish and improve the compensation system for ecological protection according to State regulations.

For the areas under ecological protection in the Municipality, the municipal or district people's government shall give economic compensation by such means as financial transfer payment. The municipal development and reform department shall, in conjunction with the relevant administrative departments, establish and improve the eco-compensation mechanism to ensure that the compensation funds are used for ecological protection compensation.

The people's governments of the beneficiary areas and ecological protection areas may make compensation for ecological protection through consultation or in accordance with market rules.

**(11) *Measures for the Administration of Chongming Dongtan Birds Nature***

***Reserve, Shanghai***

Article 5 The construction and management of nature reserves shall be intended to conserve birds and protect the natural environment on which they depend, conduct scientific planning, zoning control and dynamic protection, and properly handle the relationship with local economic construction and residents' production and life.

Article 10 No production facilities shall be built within the core area or buffer area.

No one shall be allowed to enter the core area. To enter the core area to conduct scientific research observations and surveys for scientific research, an application and an activity plan shall be submitted to the administration office of the nature reserve for approval by the municipal administrative authority of nature reserves.

Tourism, production and trading activities are prohibited in the buffer area. In case that non-destructive activities, such as scientific research, educational practice and specimen collection, need to be conducted for the purpose of teaching or scientific research in the buffer area, an application and an activity plan shall be submitted to the administration office of the nature reserve in advance for approval.

Article 11 It is forbidden to build production facilities that may cause environmental pollution or damage the natural resources in the experimental zone; the discharge of pollutants from the built other projects shall not exceed relevant standards prescribed by the State and the Municipality. If the discharge of pollutants from the facilities built in the experimental zone of the nature reserve is above the national and municipal discharge standards, it shall be rectified within a prescribed time; and remedies shall be made for the damage caused.

In the case of visitation and tourism activities in the experimental zone, the administration office of the nature reserve shall prepare a plan that meets the administrative objectives of the nature reserve. Visitation and tourism activities in the nature reserve shall be organized according to the plan under strengthened management; all participating entities and individuals shall be subject to the management by the administration office of the nature reserve.

Visitation and tourism activities that are not in line with the protection guidelines for the nature reserve are prohibited.

Article 12 In the nature reserve, no entity or individual shall:

(1) Conduct felling, grazing, hunting, fishing, herb gathering, land reclaiming, burning, mining, quarrying, sand dredging and other activities, except as otherwise provided by laws and administrative regulations;

- (2) Enter the core area or buffer area of the nature reserve without authorization;
- (3) Use prohibited tools or methods to catch birds and other wild animals, or entry the nature reserve with hunting and fishing tools without authorization;
- (4) Breed and pick wild animals without authorization;
- (5) Occupy piles of objects in the nature reserve without authorization;
- (6) Manipulate unmanned aerial vehicles or captive hangings into low altitude of the nature reserve without authorization;
- (7) Destroy, damage or move markers or protection facilities in the nature reserve without authorization;
- (8) Introduce alien species that cause or may cause serious harm to birds and the natural environment on which they depend;
- (9) Carry out other activities that damage the natural environment.

#### **(12) *Regulations of Dongying Municipality on Wetland Protection***

Article 11 The wetland protection plan shall highlight characteristics of local ecological environment, reflect the concept of urban development in harmony with wetlands, conform to the city-level and county-level master plan for land space and for Yellow River Basin, and align with the plans for environmental protection, water resources protection, tourism, etc. The wetland protection plan shall be prepared through investigation and solicitation of opinions from relevant entities, experts and the public by convening symposiums, hearings, expert review, etc. Where spatial layout or land need is involved, the city-level or county-level master plan for land space shall consider it in any preparation or revision.



Article 12 The wetland protection plan shall specify the overall layout, targets and tasks, safeguards and protection, restoration, utilization method, etc. for wetland protection and rational use, legally and scientifically define the range of wetland protection, and determine the controlled wetland area in the Municipality and relevant counties (districts) in accordance with aggregate control requirements for all wetlands by the State and Shandong Province.

Article 21 Conservation zones shall be designated in the wetland parks. The restoration and rehabilitation zone and rational use zone outside the conservation zone can be delineated according to natural conditions and management needs for zoning management. No activities unrelated to the conservation and management of wetland ecosystems shall be carried out in the conservation zone except for necessary activities including protection, monitoring and scientific research of wetland resources. The activities related to the conservation and restoration of wetlands shall be carried out in the restoration and rehabilitation zone. Appropriate educational activities and ecological experience focused on ecological display and science education, as well as management services may be carried out in the rational use zone without damaging the basic functions of the wetland ecosystem.

**(13) *Measures for the Administration of Shandong Yellow River Delta National Nature Reserve***

Article 16 A wetland water replenishment mechanism shall be established to protect and restore wetland functions orderly through water replenishment for wetlands suffering functional degradation due to the lack of water. Departments such as administration and water conservancy for Yellow River Estuary shall strengthen river management, protect and scientifically allocate water resources, ensure smooth channels to the Yellow River,

coordinate water resources in the nature reserve, guarantee the ecological water use on wetlands, and maintain ecological security.

Article 17 The state-owned land use rights of the nature reserve shall be allocated to the administration office of the nature reserve Authority pursuant to the law, and shall be registered by the municipal land and resources department.

No entity or individual shall carry out production and business activities in the public interest sea areas within the core area and buffer area in the nature reserve.

To carry out sea use activities within the experimental zone of the nature reserve, the sea use entity or individual shall apply to the municipal marine and fishery department, which shall solicit the opinions from the administration office of the nature reserve and then submit the application to the competent people's government for approval in accordance with the law.

Article 18 Land use control shall be exercised over existing cultivated lands and other agricultural lands within the experimental zone whose use right does not belong to the administration bureau of the nature reserve. The land use right owner shall carry out agricultural production according to the overall land use plan and the detailed plan for the nature reserve, and shall sign a production code with the administration office of the nature reserve to stipulate the time limit, type, manner and scale of planting and harvesting.

Article 19 The administration office of the nature reserve shall, in conjunction with forestry, marine and fishery departments to establish and improve a rescue mechanism for rare wild animals to timely accept rescue reports and take emergency rescue measures for the injured, stranded or trapped wild animals; and shall timely release the eligible wild animals to nature after rescue.

Article 20 No entity or individual shall enter the core area except for scientific research approved by law; no tourism or production and business activities shall be carried out in the buffer area, except for non-destructive scientific research, educational practice and specimen collection approved by law, the copies of whose results shall be submitted to the administration office of the nature reserve after completion; activities such as observation, tourism, photography, breeding and domestication of rare and endangered wildlife by law may be permitted to be conducted in the experimental zone.

Article 21 Existing production and operation entities in the nature reserve shall be under standard management and shall be gradually moved out.

Existing residents in the nature reserve shall be gradually emigrated and be properly placed by the county and district in which they are settled.

Article 22 In the nature reserve, no entity or individual shall:

- (1) Conduct bay salt, use freshwater wetlands for mariculture, fill, or occupy wetlands or change the use of wetlands without authorization;
- (2) Illegally fetch earth, use fire in the open air, or cut down forest trees;
- (3) Willfully discharge the stored water impounding of wetlands, or cut off the connection between wetlands and surrounding water systems;
- (4) Discharge wastewater not up to standard, release chemicals that may be injurious to water or aquatic organisms, or dump solid waste;
- (5) Destroy migratory pathways of fish and other aquatic organisms or important breeding areas or habitats of wild animals;

- (6) Willfully introduce alien species or genetically modified organisms, hunt and collect national and provincial key protected wildlife, pick up and destroy bird eggs, or catch fish and other aquatic organisms by adopting extinct fishing means;
- (7) Move or destroy landmarks of the nature reserve or facilities built for tourism, security, etc. without authorization;
- (8) Construct buildings or structures against the law, or excavate waterways without authorization;
- (9) Misappropriate, illegally lease, or illegally transfer any land or sea areas within the nature reserve;
- (10) Conduct other acts prohibited by laws, rules or regulations.

**(14) *Regulations of Hebei Province on Wetland Protection***

Article 4 People's governments at all levels shall be responsible for the quality of the ecological environment within their administrative regions. Township and town people's governments and subdistrict offices shall specify the institutions that assume responsibility for ecological environmental protection, allocate staff for ecological environmental protection in line with actual work needs, and implement requirements relevant to ecological environmental protection. Grass-roots self-governing mass organizations shall be encouraged and guided to promote ecological environmental protection pursuant to village regulations and agreements, etc.

Article 5 The ecology and environment authority shall implement unified supervision and administration over ecological environmental protection within the administrative region. Departments regarding development and reform, public security, natural resources, housing

and urban-rural development, transportation, industry and information technology, water administration, agriculture and rural affairs, health, culture and tourism, market supervision and management, forestry and grassland, urban management, administrative approval, meteorology, ocean, postal management, and maritime management shall strive to conduct ecological environmental protection in accordance with their respective responsibilities.

Article 6 All entities and individuals shall have the obligation to protect the ecological environment. Enterprises, public institutions and other production operators shall prevent and reduce environmental pollution and ecological damages, and take responsibility for the damage caused in accordance with the law. Citizens shall enhance their awareness of ecological environmental protection, practice a green consumption concept, adopt a low-carbon and frugal style of living, and consciously fulfill their obligations in ecological environmental protection.

***(15) Provisions of Hebei Province on Wetland Protection***

Article 21 It is forbidden in wetlands to:

- (1) Occupy, reclaim, fill in or drain the wetlands without authorization;
- (2) Excavate sand or fetch soil without authorization;
- (3) Discharge pollutants illegally to the wetlands;
- (4) Overgraze or overfish;
- (5) Destroy migratory pathways or habitats of wild animals;
- (6) Destroy or move wetland landmarks;

(7) Conduct other activities that may destroy wetlands or their ecological functions or change the purpose of wetlands.

**(16) *Regulations of Hebei Province on Scenic and Historic Areas***

Article 21 It is forbidden in the scenic and historic areas to:

- (1) Conduct mountain excavation, quarrying, mining, reclamation of wastelands, grave building, erection of stone monuments and other activities that may damage the landscapes, vegetation or topography;
- (2) Build facilities used to store explosive, flammable, radioactive, toxic, or corrosive goods;
- (3) Carve or scribble on scenery or facilities;
- (4) Litter;
- (5) Release or dump waste water, gas or residue that may destroy the environment;
- (6) Cut or destroy ancient and famous trees.

Industrial facilities or sites that affect the landscape or pollute the environment shall not be built in the protection zone outside the scenic area.

Article 22 It is forbidden to establish various types of development zones in the scenic area and to construct hotels, guest houses, training centers, sanatoriums, clubs and other buildings unrelated to the protection of scenic resources in the core scenic area and if built, they shall be gradually moved out as per the scenic resort plan.

**(17) *Regulations of Liaoning Province on Wetland Protection***

Article 25 No entity or individual shall:

- (1) Drain water resource of marshes and wetlands or cut off the connection between water systems of and surrounding wetlands;
- (2) Conduct reclamation (conversion);
- (3) Discharge sewage, toxic or harmful substances, or dump solid waste to the wetland;
- (4) Pick up or illegally collect and sell eggs from the main breeding and roosting wetlands of migratory birds, or conduct other acts of destructing the breeding and roosting wetlands of migratory birds;
- (5) Dig ponds or ditches, build dams or burning wastelands without authorization;
- (6) Have other acts of destroying wetlands.

**(18)    *Implementation Rules of Liaoning Province on the Administration of Natural Forest and Wild Animal Reserves***

Article 7 Tourism activities in the nature reserve shall be carried out in accordance with Article 12 of these Measures. If additional tourism facilities are required to occupy forest land or fell trees in nature reserve, relevant provisions in the *Measures for Implementation of the Forest Law of the People's Republic of China in Liaoning Province* shall prevail.

**(19)    *Regulations of Dalian Municipality on Marine Environment Protection***

Article 26 Within the strictly protected zones, it is forbidden to construct permanent buildings, mine sea sands, set up outfalls and carry out other activities that damage the coastal topography and ecological environments unless required for national defense and security. In the restricted development zones, the Municipality shall control the development intensity, reserve space for future development, implement a strict approval for sea use to strictly control

development and utilization activities that change the natural form and affect the ecological functions of the coast. In the optimal utilization zones, the Municipality shall make a concentrated layout, demonstrate construction projects that indeed need to occupy the natural coastline, and strictly control the length of the natural coastline occupied. The application for sea use that fails to meet the control target and requirements for retention rate of natural coastline shall not be approved.

**(20) Regulations for Administration of Yalujiang Estuary Wetland National Nature Reserve, Dandong**

**Article 14** The administration office of the nature reserve shall establish the standard for environmental noise control and set up signs in the areas where the use of sound devices is forbidden according to the need for protection of migratory birds in the nature reserve.

**Article 15** No facilities not used for non-natural protection and management shall be constructed in the core area or buffer area of the nature reserve, except for field observation stations, patrol trails, fire-fighting equipment and small permanent facilities used for work safety or protection and management according to the master plan approved for the nature reserve.

In the core area or buffer area of the nature reserve, the usage of facilities and projects that exist for historical reasons shall not be changed without permission. If the original facilities do need to be renovated, maintained or changed, relevant approval procedures shall be handled by the administration authority pursuant to the law, and materials and processes that have a minimal impact on the ecological environment and are compatible with the ecological environment shall be adopted. The projects that pollute the ecological environment shall be shut down or removed from such zone.



No production facilities that pollute the environment or destroy resources or landscapes shall be constructed in the experimental zone of the nature reserve. The discharge of pollutants from other projects built in it shall not exceed the relevant standards prescribed by the State or local governments. The discharge of pollutants from existing facilities in the experimental zone of the nature reserve that exceeds the national or local standard shall be rectified within a prescribed time.

The decision of such rectification shall be made by the authority stipulated by laws and regulations, and the entity or individual subject to such rectification shall finish it within a prescribed time.

**Article 16** No development and utilization that may change the natural attributes of the sea areas shall be permitted in the sea areas within the core area or buffer area of the nature reserve.

To carry out sea use activities that change the natural attributes within the experimental zone of the nature reserve, the sea use entity or individual shall apply to the municipal marine and fishery department, which shall solicit the opinions from the administration office of the nature reserve and then submit the application to the people's government for approval in accordance with the law.

**Article 17** Except as otherwise provided by laws and administrative regulations, in the nature reserve, no entity or individual shall:

- (1) Drain water resource of marshes and wetlands or cut off the connection between water systems of and surrounding wetlands;
- (2) Conduct dam building, wasteland burning, grazing, hunting, sand digging, herb collecting, mining, quarrying, logging, fishing or picking up bird eggs;

- (3) Carry out reclamation (conversion) or filling of wetlands;
- (4) Store (dispose of) solid waste, discharge sewage beyond the standards, or discharge toxic or harmful substances;
- (5) Have other acts of destroying wetlands.

Where an entity or individual is subject to illegal activities stated in (4), the relevant administrative authority may attach and seize the facilities and equipment used to destroy the resources of the nature reserve.

Annex Table 13 Photographs and audiovisual image inventory and authorization form

Id. No	Format (slide/ print/ text)	Caption		Date of Photo (mo/yr)	Photographer/Director of the video	Copyright owner	Contact details of copyright owner			Non-exclusive cession of rights
			Name (English/scientific)				Address	Tel/Fax	E-mail	
1	Slide in 35mm	YS-3 Migratory Bird Habitat at Chongming Dongtan, Shanghai								
		0301	Wintering Ducks	2019.11	ZHANG Bin	Management Affairs Center of Chongming Dongtan Birds Nature Reserve, Shanghai	NO.168, Dongwang Avenue, Dongtan, Chongming, Shanghai	+86-13585988499	276842504@qq.com	Authorized Use
		0302	Tidal creeks in Chongmingdongtan	2018.07						
		0303	<i>Scirpus x mariqueter</i>	2005.08						
		0304	<i>Cygnus columbianus</i>	2017.11	CHEN Tingyuan					
		0305	<i>Grus monacha</i>	2010.11	YUAN Xiao	YUAN Xiao	NO.168, Jiaozhou Road, Shanghai	+86-13701679704	heipee@163.com	Authorized Use
		0306	<i>Calidris tenuirostris</i> & <i>Limosa lapponica</i>	2011.10	Management Affairs Center of Chongming Dongtan Birds Nature Reserve, Shanghai	Management Affairs Center of Chongming Dongtan Birds Nature Reserve, Shanghai	NO.168, Dongwang Avenue, Dongtan, Chongming, Shanghai	+86-13585988499	276842504@qq.com	Authorized Use
		0307	<i>Calidris alpina</i>	2016.12	ZHANG Bin					
		0308	<i>Platalea minor</i>	2008.04	YUAN Xiao	YUAN Xiao	NO.168, Jiaozhou Road, Shanghai	+86-13701679704	heipee@163.com	Authorized Use
		0309	<i>Paradoxornis heudei</i>	2018.05	Management Affairs Center of Chongming Dongtan Birds Nature Reserve, Shanghai	Management Affairs Center of Chongming Dongtan Birds Nature Reserve, Shanghai	NO.168, Dongwang Avenue, Dongtan, Chongming, Shanghai	+86-13585988499	276842504@qq.com	Authorized Use
		0310	<i>Boleophthalmus pectinirostris</i>	2018.07	ZHENG Yunxiang	ZHENG Yunxiang	No.7, Lane 1053, Hutai Road, Jing 'an District, Shanghai	+86-15921920653	1140410363@qq.com	Authorized Use

Id. No	Format (slide/ print/ text)	Caption		Date of Photo (mo/yr)	Photographer/Director of the video	Copyright owner	Contact details of copyright owner			Non-exclusive cession of rights
			Name (English/scientific)				Address	Tel/Fax	E-mail	
		YS-4 Migratory Bird Habitat at Yellow River Estuary, Dongying, Shandong Province								
		0401	Oil painting-like wetland landscape of Yellow River Estuary	2020.04	HUANG Gaochao	HUANG Gaochao	West Door, 9# Building, Chunhe Garden of Hean Community, Liuhe Street, Hekou District, Dongying City	+86-13605465188	dyhkhgc2@sin a.com	Authorized Use
		0402	Newborn wetland of the Yellow River Estuary	2021.09	DING Hongan	DING Hongan	Yellow River Square, Hekou District, Dongying City, Shandong Province	+86-18654688958	dha0918@163.com	Authorized Use
		0403	<i>Ciconia boyciana</i>	2020.12	HU Youwen	HU Youwen	No.59, Xiaan Garden of Hean Community, Hekou District, Dongying City	+86-15615468269	15615468269@163.com	Authorized Use
		0404	<i>Saundersilarus saundersi</i>	2021.09	ZHAO Wenchang	ZHAO Wenchang	Room 201, Unit 1, 89# Building, Yangguang 100 Community, Shengli Street, Dongying District, Dongying City	+86-13589991881	38990474@qq.com	Authorized Use
		0405	<i>Grus japonensis</i>	2020.01	YANG Bin	YANG Bin	No.260 Nanyi Road, Dongying City	+86-13706361822	13706361822@139.com	Authorized Use
		0406	<i>Grus monacha</i>	2021.09	ZHAO Wenchang	ZHAO Wenchang	Room 201, Unit 1, 89# Building, Yangguang 100 Community, Shengli Street, Dongying District, Dongying City	+86-13589991881	38990474@qq.com	Authorized Use
		0407	<i>Leucogeranus leucogeranus</i>	2012.04	LIU Yueliang	LIU Yueliang	No.107 Jiaozhou Road, Dongying District, Dongying City	+86-18561216787	1477890830@qq.com	Authorized Use
		0408	<i>Pelecanus crispus</i>	2011.04						

Id. No	Format (slide/print/text)	Caption		Date of Photo (mo/yr)	Photographer/Director of the video	Copyright owner	Contact details of copyright owner			Non-exclusive cession of rights
			Name (English/scientific)				Address	Tel/Fax	E-mail	
		0409	<i>Otis tarda</i>	2011.12			Agricultural and Rural Bureau of Dongying City			
		0410	<i>Grus grus</i>	2021.02	HU Youwen	HU Youwen	No.59, Xiaan Garden of Hean Community, Hekou District, Dongying City	+86-15615468269	15615468269@163.com	Authorized Use
		<b>YS-5 Migratory Bird Habitat at Nandagang Wetland, Cangzhou, Hebei Province</b>								
		0501	Habitat of Nandagang	2020.08	DONG Xueliang	DONG Xueliang	Nandagang, Cangzhou City, Hebei Province	+86-13831783628	231833982@qq.com	Authorized Use
		0502	Winter reed landscape of Nandagang	2020.02	LIU Hongrui	LIU Hongrui	Nandagang, Cangzhou City, Hebei Province	+86-18632788433	ndgsdglc@126.com	Authorized Use
		0503	<i>Recurvirostra avosetta</i>	2020.05	LIU Yanyan	LIU Yanyan	Nandagang, Cangzhou City, Hebei Province	+86-13832711599	123617831@qq.com	Authorized Use
		0504	<i>Grus vipio</i>	2020.03	LIU Jingxian	LIU Jingxian	Nandagang, Cangzhou City, Hebei Province	+86-15632789188	ndgsdglc@126.com	Authorized Use
		0505	<i>Chlidonias hybrida</i>	2020.05	WANG Kuan	WANG Kuan	Nandagang, Cangzhou City, Hebei Province	+86-18333071697	ndgsdglc@126.com	Authorized Use
		0506	<i>Anser anser</i>	2020.03	LIU Quansheng	LIU Quansheng	Nandagang, Cangzhou City, Hebei Province	+86-13785814567	ndgsdglc@126.com	Authorized Use
		0507	<i>Podiceps cristatus</i>	2020.05	LIU Zhenju	LIU Zhenju	Nandagang, Cangzhou City, Hebei Province	+86-15931712978	ndgsdglc@126.com	Authorized Use
		0508	<i>Aythya ferina</i>	2020.01	LIU Quansheng	LIU Quansheng	Nandagang, Cangzhou City, Hebei Province	+86-13785814567	ndgsdglc@126.com	Authorized Use
		0509	<i>Ciconia boyciana</i>	2020.12	LIU Quansheng	LIU Quansheng	Nandagang, Cangzhou City, Hebei Province	+86-13785814567	ndgsdglc@126.com	Authorized Use

Id. No	Format (slide/print/text)	Caption		Date of Photo (mo/yr)	Photographer/Director of the video	Copyright owner	Contact details of copyright owner			Non-exclusive cession of rights
			Name (English/scientific)				Address	Tel/Fax	E-mail	
		0510	<i>Aythya baeri</i>	2020.02	LIU Jingxian	LIU Jingxian	Nandagang, Cangzhou City, Hebei Province	+86-15632789188	ndgsdglc@126.com	Authorized Use
		YS-6 Migratory Bird Habitat at Nanpu Zuidong Wetland, Luannan, Hebei Province								
		0601	Salt ponds and tidal flats during high tide	2021.10	WANG Tong	WANG Tong	Building A 2010, Oriental Media, No.4 Guanghua Road, Chaoyang District, Beijing	+86-18600599918	guojiashengtai@163.com	Authorized Use
		0602	Tidal flat of Luannan wetland	2019.05	NEI Yongli	NEI Yongli	Nangang New Town 113-2-1002, Nanpu Development Zone, Caofeidian District, Tangshan city	+86-15512001856	15512001856@163.com	Authorized Use
		0603	<i>Bird flock on the tidal flat</i>	2009.11	WANG Jianmin	WANG Jianmin	Room 1501, 8# Building, Haining Bay, Hangu District of Binhai New Area, Tianjin City	+86-18920710170	444518206@qq.com	Authorized Use
		0604	<i>Calidris canutus</i>	2014.05	Matt Slaymaker	Matt Slaymaker	Flat 3, 37 Cheddon Road, Taunton TA2 7BN United Kingdom	+44-7476-940949	Mattslaymaker@hotmail.co.uk	Authorized Use
		0605	<i>Recurvirostra avosetta</i>	2018.05	LEI Weipan	LEI Weipan	College of Life Science, Beijing Normal University, Haidian District, Beijing	+86-13811124320	leiweipan@bnu.edu.cn	Authorized Use
		0606	<i>Ichthyaelus relictus</i>	2018.04	ZHU Bingrun	ZHU Bingrun	Almastraat 34, 9716CX, Groningen, The Netherlands	+31-6-29907355	drewbingrun@outlook.com	Authorized Use
		0607	<i>Limosa limosa</i>	2018.04						
		0608	<i>Sternula albifrons</i>	2020.05	FANG Fuhe	FANG Fuhe	Xuguanzhai Village, Bencheng Town, Luannan County, Hebei Province	+86-13903156858	fangfuhe@163.com	Authorized Use

Id. No	Format (slide/ print/ text)	Caption		Date of Photo (mo/yr)	Photographer/Director of the video	Copyright owner	Contact details of copyright owner			Non-exclusive cession of rights
			Name (English/scientific)				Address	Tel/Fax	E-mail	
		0609	<i>Calidris ferruginea</i>	2014.05	Adrian Boyle	Adrian Boyle	PO box 3089 Broome Western Australia 6725	+61-407194478	adrianboyle@westnet.com.au	Authorized Use
		0610	<i>Himantopus himantopus</i>	2020.05	FANG Fuhe	FANG Fuhe	Xuguanzhai Village, Bencheng Town, Luannan County, Hebei Province	+86-13903156858	fangfuhe@163.com	Authorized Use
		YS-7 Migratory Bird Habitat at Qilihai Lagoon, Qinhuangdao, Hebei Province								
		0701	Qilihai sand dune landscape	2017.06	Qinhuangdao Birds Protection Association	Qinhuangdao Birds Protection Association	No.72 Jiannan Road, Beidaihe District, Qinhuangdao City	+86-13903330335	qhdsn@126.com	Authorized Use
		0702	Sunset and swan	2019.03	TONG Yongli	TONG Yongli	No.302, Unit 3, 2# Building, Real Estate Bureau Family Dormitory Building, Beixin Section of Third Street, Changli County, Qinhuangdao City, Hebei province	+86-13785992898	235467401@qq.com	Authorized Use
		0703	<i>Qilihai landscape</i>	2018.10	FEI Mingjian	FEI Mingjian	Fuxing Shop, the New Opening of Tuanlin Township, Changli Country, Qinhuangdao City	+86-13933640789	1749538429@qq.com	Authorized Use
		0704	<i>Charadrius alexandrinus</i>	2019.03	TONG Yongli	TONG Yongli	No.302, Unit 3, 2# Building, Real Estate Bureau Family Dormitory Building, Beixin Section of Third Street, Changli County,	+86-13785992898	235467401@qq.com	Authorized Use
		0705	<i>Grus japonensis</i>	2020.1						
		0706	<i>Anser fabalis</i>	2021.01						
		0707	<i>Tadorna tadorna</i>	2019.12						
		0708	<i>Cygnus cygnus</i>	2019.03						

Id. No	Format (slide/ print/ text)	Caption		Date of Photo (mo/yr)	Photographer/Director of the video	Copyright owner	Contact details of copyright owner			Non-exclusive cession of rights
			Name (English/scientific)				Address	Tel/Fax	E-mail	
		0709	<i>Leucogeranus leucogeranus</i> ; <i>Cygnus columbianus</i>	2020.11			Qinhuangdao City, Hebei province			
		0710	<i>Grus grus</i>	2018.12						
		YS-8 Migratory Bird Habitat at Dachaoping of Beidaihe, Qinhuangdao, Hebei Province								
		0801	Panoramic view of Dachaoping	2019.10	XU Denghua	XU Denghua	No.238 Taishan Road, Qinhuangdao City	+86-335-5911055	qhdlyjlyz.163.com	Authorized Use
		0802	Landscape of Dachaoping	2016.09						
		0803	<i>Landscape and gulls</i>	2017.03	Qinhuangdao Birds Protection Association	Qinhuangdao Birds Protection Association	No.72 Jiannan Road, Beidaihe District, Qinhuangdao City	+86-13903330335	qhdgnh@126.com	Authorized Use
		0804	<i>Gulls</i>	2021.08						
		0805	<i>Leucogeranus leucogeranus</i>	2010.03						
		0806	<i>Platalea minor</i>	2015.01						
		0807	<i>Grus japonensis</i>	2011.10						
		0808	<i>Ciconia boyciana</i>	2018.11						
		0809	<i>Gulls</i>	2019.04	ZHOU Xuefeng	ZHOU Xuefeng	Room 212, No.114 Lianfeng Road, Beidaihe District, Qinhuangdao city	+86-18003350258	454408856@qq.com	Authorized Use
		0810	<i>Ardea alba</i>	2018.09	Qinhuangdao Birds Protection Association	Qinhuangdao Birds Protection Association	No.72 Jiannan Road, Beidaihe District, Qinhuangdao City	+86-13903330335	qhdgnh@126.com	Authorized Use
		YS-9 Migratory Bird Habitat at Shihenandao of Laolongtou, Qinhuangdao, Hebei Province								



Id. No	Format (slide/ print/ text)	Caption		Date of Photo (mo/yr)	Photographer/Director of the video	Copyright owner	Contact details of copyright owner			Non-exclusive cession of rights
			Name (English/scientific)				Address	Tel/Fax	E-mail	
		0901	Landscape of Shihenandao	2018.08	KONG Xianglin	KONG Xianglin	Qinhuangdao Customs Coal Monitoring Technology Center, No.188, East Section of Jianshe Street, Qinhuangdao City	+86-13833501036	781905@qq.com	Authorized Use
		0902	Vegetation landscape of Shihenandao	2018.08	Qinhuangdao Birds Protection Association	Qinhuangdao Birds Protection Association	No.72 Jiannan Road, Beidaihe District, Qinhuangdao City	+86-13903330335	qhdgnh@126.com	Authorized Use
		0903	<i>Sternula albifrons</i>	2015.06						
		0904	<i>Haliaeetus albicilla</i>	2018.03						
		0905	<i>Ciconia boyciana</i>	2009.11						
		0906	<i>Grus japonensis</i>	2020.12						
		0907	<i>Panurus biarmicus</i>	2017.10						
		0908	<i>Tadorna ferruginea</i>	2019.01						
		0909	<i>Charadrius dubius</i>	2021.05	KONG Xianglin	KONG Xianglin	Qinhuangdao Customs Coal Monitoring Technology Center, No.188, East Section of Jianshe Street, Qinhuangdao City	+86-13833501036	781905@qq.com	Authorized Use
		0910	<i>Emberiza aureola</i>	2018.05						
		YS-10 Migratory Bird Habitat at Liao River Estuary, Panjin, Liaoning Province								
		1001	Miraculous Liao river Estuary	2014.08	XIA Jianguo	XIA Jianguo	NO.302, Building B, Liaodong Bay New District, Panjin City, Liaoning Province	+86-427-2828410	pjslsj_2019@163.com	Authorized Use
		1002	Intertidal Zone of Liaohe Estuary	2021.09	National Ecology	National Ecology	2010, Building A, Dongfangmeimi, No.4 Guanghua Road, Chaoyang District, Beijing	+86-18600599918	guojiashengtai@163.com	Authorized Use
		1003	<i>Saundersilarus saundersi</i>	2004.06	XIA Jianguo	XIA Jianguo				

Id. No	Format (slide/print/text)	Caption		Date of Photo (mo/yr)	Photographer/Director of the video	Copyright owner	Contact details of copyright owner			Non-exclusive cession of rights
			Name (English/scientific)				Address	Tel/Fax	E-mail	
		1004	<i>Saundersilarus saundersi</i>	2004.11			No.302, Building B, Liaodong Bay New Area, Panjin city, Liaoning Province	+86-427-2828410	pjslsj_2019@163.com	Authorized Use
		1005	<i>Grus japonensis</i>	2007.04	LIU Dongwei	LIU Dongwei	No.302, Building B, Liaodong Bay New Area, Panjin city, Liaoning Province	+86-427-2828410	pjslsj_2019@163.com	Authorized Use
		1006	<i>Calidris tenuirostris</i>	2021.04	LI Yuxiang	LI Yuxiang	No.302, Building B, Liaodong Bay New Area, Panjin city, Liaoning Province	+86-427-2828410	pjslsj_2019@163.com	Authorized Use
		1007	<i>Limosa lapponica</i>	2000.05	ZHANG Ming	ZHANG Ming	No.302, Building B, Liaodong Bay New Area, Panjin city, Liaoning Province	+86-427-2828410	pjslsj_2019@163.com	Authorized Use
		1008	<i>Limosa limosa</i>	2011.09						
		1009	<i>Haematopus ostralegus</i>	2017.09	PENG Hebo	PENG Hebo	Building 26, 1st Phase of Shouchuangxuhui City, Lane 518, Huiyuan Road, Jiading District, Shanghai	+86-18721102975	hebo.peng@outlook.com	Authorized Use
		1010	<i>Phoca largha</i>	2009.04	ZONG Shuxing	ZONG Shuxing	No.302, Building B, Liaodong Bay New Area, Panjin city, Liaoning Province	+86-427-2828410	pjslsj_2019@163.com	Authorized Use
		<b>YS-11 Migratory Bird Habitat at Snake Island - Laotieshan, Dalian, Liaoning Province</b>								
		1101	<i>Pernis ptilorhynchus</i>	2015.09	WANG Xiaoping	WANG Xiaoping	NO.2, Youyi Road, Lvshun, Dalian City, Liaoning Province	+86-411-86383697	snakeisland@163.com	Authorized Use
		1102	<i>Aquila chrysaetos</i>	2014.04						
		1103	<i>Buteo japonicus</i>	2015.10						
		1104	<i>Emberiza aureola</i>	2020.05						

Id. No	Format (slide/ print/ text)	Caption		Date of Photo (mo/yr)	Photographer/Director of the video	Copyright owner	Contact details of copyright owner			Non-exclusive cession of rights
			Name (English/scientific)				Address	Tel/Fax	E-mail	
		1105	<i>Egretta eulophotes</i>	2013.06						
		1106	<i>Asio otus</i>	2017.10	WANG Xiaoping	WANG Xiaoping	NO.2, Youyi Road, Lvshun, Dalian City, Liaoning Province	+86-411-86383697	snakeisland@163.com	Authorized Use
		1107	Migratory Raptors	2006.09						
		1108	Bird catching of <i>Gloydius shedaoensis</i>	2018.11						
		1109	Egret Gulf of Snake Island	2018.07						
		1110	Snake Island	2009.08						
		YS-12 Migratory Bird Habitat at Yalujiang Estuary, Dandong, Liaoning Province								
		1201	<i>Numenius madagascariensis</i>	2021.04	CHUNYU Changsheng	CHUNYU Changsheng	NO.6, Xingyi Road, Zhenxing District, Dandong City, Liaoning Province	+86-13124156218	652114447@qq.com	Authorized Use
		1202	<i>Calidris tenuirostris</i>	2018.04	BAI Qingquan	BAI Qingquan	NO.110, Liuwei Road, Zhenxing District, Dandong city, Liaoning Province	+86-13898522011	bqqwhite@163.com	Authorized Use
		1203	Group of birds flying in the sky of Donggang	2011.04	SHAO Yeping	SHAO Yeping	99 Shanshan Street, Zhenxing District, Dandong city, Liaoning Province	+86-15941565858	syp0328@gmail.com	Authorized Use
		1204	<i>Grus monacha</i>	2021.07	LIU Mingyu	LIU Mingyu	NO.17, Zhongfu Street, Yuanbao District, Dandong city, Liaoning Province	+86-13941588880	279747172@qq.com	Authorized Use
		1205	<i>Tringa guttifer</i>	2011.04	BAI Qingquan	BAI Qingquan	NO.110, Liuwei Road, Zhenxing District, Dandong city, Liaoning Province	+86-13898522011	bqqwhite@163.com	Authorized Use

Id. No	Format (slide/print/text)	Caption		Date of Photo (mo/yr)	Photographer/Director of the video	Copyright owner	Contact details of copyright owner			Non-exclusive cession of rights
			Name (English/scientific)				Address	Tel/Fax	E-mail	
		1206	<i>Calidris pygmeus</i>	2000.02	LIU Mingyu	LIU Mingyu	NO.17, Zhongfu Street, Yuanbao District, Dandong city, Liaoning Province	+86-13941588880	279747172@qq.com	Authorized Use
		1207	<i>Platalea leucorodia</i>	2020.03	ZHOU Guiping	ZHOU Guiping	NO.153, Donggang Shi Nan Lu, Dandong City, Liaoning Province	+86-15942525556	188213259@qq.com	Authorized Use
		1208	Intertidal Waders	2014.05	CHUNYU Changsheng	CHUNYU Changsheng	NO.6, Xingyi Road, Zhenxing District, Dandong City, Liaoning Province	+86-13124156218	652114447@qq.com	Authorized Use
		1209	<i>Platalea minor</i> & <i>Larus crassirostris</i>	2017.05	ZHOU Guiping	ZHOU Guiping	NO.153, Donggang Shi Nan Lu, Dandong City, Liaoning Province	+86-15942525556	188213259@qq.com	Authorized Use
		1210	<i>Limosa lapponica</i>	2021.03	LIU Mingyu	LIU Mingyu	NO.17, Zhongfu Street, Yuanbao District, Dandong city, Liaoning Province	+86-13941588880	279747172@qq.com	Authorized Use
		<b>YS-13 Migratory Bird Habitat at Changshan Archipelago, Dalian, Liaoning Province</b>								
		1301	Fantuozi islet of Guanglu Island	2021.09	National Ecology	National Ecology	2010, Building A, Dongfangmeimi, No.4 Guanghua Road, Chaoyang District, Beijing	+86-18600599918	guojiashengtai@163.com	Authorized Use
		1302	<i>Egretta eulophotes</i>	2015.06	ZHANG Zhongmin	ZHANG Zhongmin	Dalian Changhai County Cultural Center	+86-13500760666	1651256462@qq.com	Authorized Use
		1303	<i>Egretta eulophotes</i>	2015.06	WANG Jie	WANG Jie	Changhai County Medical Security Bureau	+86-18018906321	2774649@qq.com	Authorized Use
		1304	<i>Phalacrocorax pelagicus</i>	2021.03	WU Lan	WU Lan	NO.35, Qinghua East Road, Haidian District, Beijing	+86-13811194908	wulan.pku@gmail.com	Authorized Use
		1305	<i>Haematopus ostralegus</i>	2021.03						
		1306	<i>Falco peregrinus</i>	2021.03						

Id. No	Format (slide/ print/ text)	Caption		Date of Photo (mo/yr)	Photographer/Director of the video	Copyright owner	Contact details of copyright owner			Non-exclusive cession of rights
			Name (English/scientific)				Address	Tel/Fax	E-mail	
		1307	<i>Cygnus cygnus</i>	2015.04	WANG Jie	WANG Jie	Changhai County Medical Security Bureau	+86-18018906321	2774649@qq.com	Authorized Use
		1308	<i>Larus crassirostris</i>	2017.03	ZHANG Zhongmin	ZHANG Zhongmin	Dalian Changhai County Cultural Center	+86-13500760666	1651256462@qq.com	Authorized Use
		1309	<i>Bucephala clangula</i>	2016.01						
		1310	<i>Sousa chinensis</i>	2021.04	XU Jing	XU Jing	Dachangshan Island Town, Changhai County, Dalian City, Liaoning Province	+86-15841123220	948980292@qq.com	Authorized Use
2	Print	Part 1 New Zealand and Australian Harbors								
		P1-01	Roebuck Bay, Broome	2016.09	PENG Hebo	PENG Hebo	Building 26, 1st Phase of Shouchuangxuhui City, Lane 518, Huiyuan Road, Jiading District, Shanghai	+86-18721102975	hebo.peng@outlook.com	Authorized Use
		P1-02	Wintering birds	2016.09						
		Part 2 Migratory Bird Sanctuaries along the Coast of Yellow Sea-Bohai Gulf of China								
		P2-YS-1/2-01	Tidal 'forest'	2020.05	SUN Huajin	SUN Huajin	706, Building1, Gaojiao Apartment, Tinghu District, Yancheng City, Jiangsu Province	+86-15005108958	156682804@qq.com	Authorized Use
		P2-YS-1/2-02	"Eye" of wetland	2019.10						
		P2-YS-1/2-03	Dongsha	2017.09	CHEN Guoyuan	CHEN Guoyuan	No.8, Wanghe Road, Xinyang Port, Huangjian Town, Tinghu District, Yancheng City, Jiangsu Province	+86-515-82642202	495982885@qq.com	Authorized Use
		P2-YS-1/2-04	<i>Suaeda salsa</i> marsh	2017.09						

Id. No	Format (slide/ print/ text)	Caption		Date of Photo (mo/yr)	Photographer/Director of the video	Copyright owner	Contact details of copyright owner			Non-exclusive cession of rights
			Name (English/scientific)				Address	Tel/Fax	E-mail	
		P2-YS-1/2-05	Shorebirds in Tiaozini wetland	2017.09	LI Dongming	LI Dongming	NO.1018, Kechuang Building, Jianggang Town, Dongtai city, Jiangsu Province	+86-13605113841	550569231@qq.com	Authorized Use
		P2-YS-1/2-06	Nest of Black-crowned Night-heron( <i>Nycticorax nycticorax</i> )	2018.08	CHEN Guoyuan	CHEN Guoyuan	No.8, Wanghe Road, Xinyang Port, Huangjian Town, Tinghu District, Yancheng City, Jiangsu Province	+86-515-82642202	495982885@qq.com	Authorized Use
		P2-YS-1/2-07	<i>Calidris pygmeus</i>	2019.11	SUN Lili	SUN Lili	506, Experimental Building, Beijing Forestry University, NO.35, Qinghua East Road, Haidian District, Beijing	+86-13602609068	sunlily1963@163.com	Authorized Use
		P2-YS-1/2-08	<i>Tringa guttifer</i>	2018.09	SUN Huajin	SUN Huajin	706, Building1, Gaojiao Apartment, Tinghu District, Yancheng City, Jiangsu Province	+86-15005108958	156682804@qq.com	Authorized Use
		P2-YS-1/2-09	<i>Numenius madagascariensis</i>	2016.12	MO Xunqiang	MO Xunqiang	NO.393, Binshui West Road, Xiqing District, Tianjin	+86-13820374120	421973@163.com	Authorized Use
		P2-YS-1/2-10	<i>Grus japonensis</i>	2017.11	CHEN Guoyuan	CHEN Guoyuan	No.8, Wanghe Road, Xinyang Port, Huangjian Town, Tinghu District, Yancheng City, Jiangsu Province	+86-515-82642202	495982885@qq.com	Authorized Use
		P2-YS-1/2-11	<i>Leucogeranus leucogeranus</i>	2017.12	JIA Yifei	JIA Yifei	506, Experimental Building, Beijing Forestry University, NO.35, Qinghua East Road, Haidian District, Beijing	+86-10-62336397	jiayifei@bjfu.edu.cn	Authorized Use

Id. No	Format (slide/print/text)	Caption		Date of Photo (mo/yr)	Photographer/Director of the video	Copyright owner	Contact details of copyright owner			Non-exclusive cession of rights
			Name (English/scientific)				Address	Tel/Fax	E-mail	
		P2-YS-1/2-12	<i>Platalea minor</i>	2012.04	SUN Huajin	SUN Huajin	706, Building1, Gaojiao Apartment, Tinghu District, Yancheng City, Jiangsu Province	+86-15005108958	156682804@qq.com	Authorized Use
		P2-YS-1/2-13	<i>Saundersilarus saundersi</i>	2019.06						
		P2-YS-1/2-14	<i>Anser cygnoid</i>	2017.12	JIA Yifei	JIA Yifei	506, Experimental Building, Beijing Forestry University, NO.35, Qinghua East Road, Haidian District, Beijing	+86-10-62336397	jiayifei@bjfu.edu.cn	Authorized Use
		P2-YS-1/2-15	<i>Calidris ruficollis</i>	2019.11	SUN Lili	SUN Lili	506, Experimental Building, Beijing Forestry University, NO.35, Qinghua East Road, Haidian District, Beijing	+86-13602609068	sunlily1963@163.com	Authorized Use
		P2-YS-1/2-16	Père David's Deer ( <i>Elaphurus davidianus</i> )	2017.05	SUN Huajin	SUN Huajin	706, Building1, Gaojiao Apartment, Tinghu District, Yancheng City, Jiangsu Province	+86-15005108958	156682804@qq.com	Authorized Use
		P2-YS-1/2-17	<i>Bullacta exarata</i>	2018.09	CHEN Yun	CHEN Yun	G525, Jiangwan campus of Fudan University, Shanghai	+86-21-51630706	16210700102@fudan.edu.cn	Authorized Use
		P2-YS-1/2-18	<i>Pluvialis fulva</i> is eating the <i>Nereididae</i>	2019.08	LIU Desheng	LIU Desheng	NO.28, Yunnan Road, Gangkou District, Fangchenggang City, Guangxi	+86-13977077836	liudesheng836@163.com	Authorized Use
		P2-YS-3-01	Optimization area of Chongmingdongtan	2017.09	ZHANG Bin	Management Affairs Center of Chongming	NO.168, Dongwang Avenue, Dongtan, Chongming, Shanghai	+86-13585988499	276842504@qq.com	Authorized Use

Id. No	Format (slide/print/text)	Caption		Date of Photo (mo/yr)	Photographer/Director of the video	Copyright owner	Contact details of copyright owner			Non-exclusive cession of rights
			Name (English/scientific)				Address	Tel/Fax	E-mail	
		P2-YS-3-02	<i>Calidris tenuirostris</i> & <i>Limosa lapponica</i>	2011.10	Management Affairs Center of Chongming Dongtan Birds Nature Reserve, Shanghai	Dongtan Birds Nature Reserve, Shanghai				
		P2-YS-3-03	Shorebirds	2015.03	YUAN Xiao	YUAN Xiao	NO.168, Jiaozhou Road, Shanghai	+86-13701679704	heip ee@163.com	Authorized Use
		P2-YS-3-04	Tidal creeks in Chongmingdongtan	2018.07	ZHANG Bin	Management Affairs Center of Chongming Dongtan Birds Nature Reserve, Shanghai	NO.168, Dongwang Avenue, Dongtan, Chongming, Shanghai	+86-13585988499	276842504@qq.com	Authorized Use
		P2-YS-3-05	Sunset in Chongmingdongtan	2016.12						
		P2-YS-3-06	<i>Scirpus x mariqueter</i>	2005.08						
		P2-YS-3-07	<i>Cygnus columbianus</i>	2017.11	CHEN Tingyuan					
		P2-YS-3-08	<i>Grus monacha</i>	2010.11	YUAN Xiao	YUAN Xiao	NO.168, Jiaozhou Road, Shanghai	+86-13701679704	heip ee@163.com	Authorized Use
		P2-YS-3-09	<i>Numenius madagascariensis</i>	2016.09	BO Shunqi	BO Shunqi	NO.168, Jiaozhou Road, Shanghai	+86-13816294330	844326535@qq.com	Authorized Use
		P2-YS-3-10	<i>Arenaria interpres</i>	2006.05	YUAN Xiao	YUAN Xiao	NO.168, Jiaozhou Road, Shanghai	+86-13701679704	heip ee@163.com	Authorized Use
		P2-YS-3-11	<i>Calidris alpina</i>	2011.10	ZHANG Bin	Management Affairs Center of Chongming Dongtan Birds	NO.168, Dongwang Avenue, Dongtan, Chongming, Shanghai	+86-13585988499	276842504@qq.com	Authorized Use



Id. No	Format (slide/print/text)	Caption		Date of Photo (mo/yr)	Photographer/Director of the video	Copyright owner	Contact details of copyright owner			Non-exclusive cession of rights
			Name (English/scientific)				Address	Tel/Fax	E-mail	
						Nature Reserve, Shanghai				
		P2-YS-3-12	<i>Platalea minor</i>	2008.04	YUAN Xiao	YUAN Xiao	NO.168, Jiaozhou Road, Shanghai	+86-13701679704	heipee@163.com	Authorized Use
		P2-YS-3-13	<i>Charadrius mongolus</i>	2004.01	ZHANG Bin	Management Affairs Center of Chongming Dongtan Birds Nature Reserve, Shanghai	NO.168, Dongwang Avenue, Dongtan, Chongming, Shanghai	+86-13585988499	276842504@qq.com	Authorized Use
		P2-YS-3-14	<i>Chlidonias hybrida</i>	2005.07						
		P2-YS-3-15	<i>Paradoxornis heudei</i>	2011.08						
		P2-YS-3-16	<i>Tubuca arcuata</i>	2005.08						
		P2-YS-3-17	<i>Boleophthalmus pectinirostris</i>	2018.07	ZHENG Yunxiang	ZHENG Yunxiang	No.7, Lane 1053, Hutai Road, Jing 'an District, Shanghai	+86-15921920653	1140410363@qq.com	Authorized Use
		P2-YS-3-18	<i>Eriocheir sinensis</i>	2003.06	Management Affairs Center of Chongming Dongtan Birds Nature Reserve, Shanghai	Management Affairs Center of Chongming Dongtan Birds Nature Reserve, Shanghai	NO.168, Dongwang Avenue, Dongtan, Chongming, Shanghai	+86-13585988499	276842504@qq.com	Authorized Use
		P2-YS-3-19	Mr Jin, the bird simulator	2007.05	JAN van de KAM	JAN van de KAM	Deurneseweg 1, 5766 PH Griendtsveen Netherlands	+86-13585988499	jkam@worldonline.nl	Authorized Use
		P2-YS-3-20	the researcher is attaching bird banding to the bird's leg	2015.03	Management Affairs Center of Chongming	Management Affairs Center of Chongming Dongtan Birds	NO.168, Dongwang Avenue, Dongtan, Chongming, Shanghai	+86-13585988499	276842504@qq.com	Authorized Use

Id. No	Format (slide/ print/ text)	Caption		Date of Photo (mo/yr)	Photographer/Director of the video	Copyright owner	Contact details of copyright owner			Non-exclusive cession of rights
			Name (English/scientific)				Address	Tel/Fax	E-mail	
		P2-YS-3-21	Public awareness activities for Wildlife Conservation Month	2020.11	Dongtan Birds Nature Reserve, Shanghai	Nature Reserve, Shanghai				
		P2-YS-4-01	Overlooking landscape of the Yellow River Estuary	2020.08	FU Jianzhi	FU Jianzhi	Room 201, Unit 3, 25# Building, Hesheng Community, Hekou District, Dongying City, Shandong Province	+86-18661380199	dyhkfjz1956@163.com	Authorized Use
		P2-YS-4-02	Newborn wetland of the Yellow River Estuary	2021.09	DING Hongan	DING Hongan	Yellow River Square, Hekou District, Dongying City, Shandong Province	+86-18654688958	dha0918@163.com	Authorized Use
		P2-YS-4-03	Oil painting-like wetland landscape of Yellow River Estuary	2020.04	HUANG Gaochao	HUANG Gaochao	West Door, 9# Building, Chunhe Garden of Hean Community, Liuhe Street, Hekou District, Dongying City	+86-13605465188	dyhkhgc2@sina.com	Authorized Use
		P2-YS-4-04	Newborn wetland of the Yellow River Estuary	2021.09	DING Hongan	DING Hongan	Yellow River Square, Hekou District, Dongying City, Shandong Province	+86-18654688958	dha0918@163.com	Authorized Use
		P2-YS-4-05	The Yellow River carrying soil	2020.07						
		P2-YS-4-06	Recovering wetland	2010.06	LIU Yueliang	LIU Yueliang	No.107 Jiaozhou Road, Dongying District, Dongying City Agricultural and Rural Bureau of Dongying City	+86-18561216787	1477890830@qq.com	Authorized Use
		P2-YS-4-07	Reed wetland	2010.05						

Id. No	Format (slide/ print/ text)	Caption		Date of Photo (mo/yr)	Photographer/Director of the video	Copyright owner	Contact details of copyright owner			Non-exclusive cession of rights
			Name (English/scientific)				Address	Tel/Fax	E-mail	
		P2-YS-4-08	Bird watching pavilion in the Yellow River Estuary and flocks	2012.01						
		P2-YS-4-09	The popular science education	2021.08	LI Mingrui	LI Mingrui	3# Building, Gate Scenic Area, Yellow River Estuary Ecological Tourism Area, Dongying City, Shandong Province Birds' Museum at the Yellow River Delta	+86-13561013333	378179999@qq.com	Authorized Use
		P2-YS-4-10	Scientific research	2021.06	YANG Bin	YANG Bin	No.260 Nanyi Road, Dongying City	+86-13706361822	13706361822@139.com	Authorized Use
		P2-YS-4-11	<i>Platalea leucorodia</i>	2012.01	LIU Yueliang	LIU Yueliang	No.107 Jiaozhou Road, Dongying District, Dongying City Agricultural and Rural Bureau of Dongying City	+86-18561216787	1477890830@qq.com	Authorized Use
		P2-YS-4-12	<i>Ciconia boyciana</i>	2020.12	HU Youwen	HU Youwen	No.59, Xiaan Garden of Hean Community, Hekou District, Dongying City	+86-15615468269	15615468269@163.com	Authorized Use
		P2-YS-4-13	<i>Pelecanus crispus</i>	2016.12						
		P2-YS-4-14	Crabs	2009.07						
		P2-YS-4-15	<i>Grus monacha</i>	2021.09	ZHAO Wenchang	ZHAO Wenchang	Room 201, Unit 1, 89# Building, Yangguang 100 Community, Shengli Street, Dongying City	+86-13589991881	38990474@qq.com	Authorized Use

Id. No	Format (slide/ print/ text)	Caption		Date of Photo (mo/yr)	Photographer/Director of the video	Copyright owner	Contact details of copyright owner			Non-exclusive cession of rights
			Name (English/scientific)				Address	Tel/Fax	E-mail	
		P2-YS-4-16	<i>Otis tarda</i>	2011.12	LIU Yueliang	LIU Yueliang	No.107 Jiaozhou Road, Dongying District, Dongying City Agricultural and Rural Bureau of Dongying City	+86-18561216787	1477890830@qq.com	Authorized Use
		P2-YS-4-17	<i>Leucogeranus leucogeranus</i>	2015.11	HU Youwen	HU Youwen	No.59, Xiaan Garden of Hean Community, Hekou District, Dongying City	+86-15615468269	15615468269@163.com	Authorized Use
		P2-YS-4-18	<i>Ciconia boyciana</i>	2020.12	HU Youwen	HU Youwen	No.59, Xiaan Garden of Hean Community, Hekou District, Dongying City	+86-15615468269	15615468269@163.com	Authorized Use
		P2-YS-4-19	Flocks of shorebirds	2012.1	LIU Yueliang	LIU Yueliang	No.107 Jiaozhou Road, Dongying District, Dongying City Agricultural and Rural Bureau of Dongying City	+86-18561216787	1477890830@qq.com	Authorized Use
		P2-YS-4-20	<i>Grus grus</i>	2021.02	HU Youwen	HU Youwen	No.59, Xiaan Garden of Hean Community, Hekou District, Dongying City	+86-15615468269	15615468269@163.com	Authorized Use
		P2-YS-4-21	<i>Grus japonensis</i>	2020.1	YANG Bin	YANG Bin	No.260 Nanyi Road, Dongying City	+86-13706361822	13706361822@139.com	Authorized Use
		P2-YS-4-22	<i>Saundersilarus saundersi</i>	2021.09	ZHAO Wenchang	ZHAO Wenchang	Room 201, Unit 1, 89# Building, Yangguang 100 Community, Shengli Street, Dongying District, Dongying City	+86-13589991881	38990474@qq.com	Authorized Use

Id. No	Format (slide/ print/ text)	Caption		Date of Photo (mo/yr)	Photographer/Director of the video	Copyright owner	Contact details of copyright owner			Non-exclusive cession of rights
			Name (English/scientific)				Address	Tel/Fax	E-mail	
		P2-YS-5-01	Winter landscape of Nandagang	2020.01	LIU Quansheng	LIU Quansheng	Nandagang, Cangzhou City, Hebei Province	+86-13785814567	ndgsdglc@126.com	Authorized Use
		P2-YS-5-02	Habitat of Nandagang	2020.08	DONG Xueliang	DONG Xueliang	Nandagang, Cangzhou City, Hebei Province	+86-13831783628	231833982@qq.com	Authorized Use
		P2-YS-5-03	Summer landscape of Nandagang	2020.06	LIU Quansheng	LIU Quansheng	Nandagang, Cangzhou City, Hebei Province	+86-13785814567	ndgsdglc@126.com	Authorized Use
		P2-YS-5-04	Winter reed landscape of Nandagang	2020.02	LIU Hongrui	LIU Hongrui	Nandagang, Cangzhou City, Hebei Province	+86-18632788433	ndgsdglc@126.com	Authorized Use
		P2-YS-5-05	The 2020 International Biodiversity Week Handwritten Newspaper Competition	2020.05						
		P2-YS-5-06	Students working hard to make a handwritten newspaper on biodiversity	2020.05						
		P2-YS-5-07	<i>Platalea leucorodia</i>	2021.02	LIU Jingxian	LIU Jingxian	Nandagang, Cangzhou City, Hebei Province	+86-15632789188	ndgsdglc@126.com	Authorized Use
		P2-YS-5-08	<i>Grus vipio</i>	2020.03						
		P2-YS-5-09	<i>Ciconia boyciana</i>	2020.12	LIU Quansheng	LIU Quansheng	Nandagang, Cangzhou City, Hebei Province	+86-13785814567	ndgsdglc@126.com	Authorized Use
		P2-YS-5-10	<i>Recurvirostra avosetta</i>	2020.05	LIU Yanyan	LIU Yanyan	Nandagang, Cangzhou City, Hebei Province	+86-13832711599	123617831@qq.com	Authorized Use

Id. No	Format (slide/print/text)	Caption		Date of Photo (mo/yr)	Photographer/Director of the video	Copyright owner	Contact details of copyright owner			Non-exclusive cession of rights
			Name (English/scientific)				Address	Tel/Fax	E-mail	
		P2-YS-5-11	<i>Podiceps cristatus</i>	2020.05	LIU Zhenju	LIU Zhenju	Nandagang, Cangzhou City, Hebei Province	+86-15931712978	ndgsdglc@126.com	Authorized Use
		P2-YS-5-12	<i>Himantopus himantopus</i>	2020.05	LIU Yanyan	LIU Yanyan	Nandagang, Cangzhou City, Hebei Province	+86-13832711599	123617831@qq.com	Authorized Use
		P2-YS-5-13	<i>Anser anser</i>	2020.03	LIU Quansheng	LIU Quansheng	Nandagang, Cangzhou City, Hebei Province	+86-13785814567	ndgsdglc@126.com	Authorized Use
		P2-YS-5-14	<i>Aythya baeri</i>	2020.02	LIU Jingxian	LIU Jingxian	Nandagang, Cangzhou City, Hebei Province	+86-15632789188	ndgsdglc@126.com	Authorized Use
		P2-YS-5-15	<i>Anser anser</i>	2019.03						
		P2-YS-5-16	<i>Aythya ferina</i>	2020.01	LIU Quansheng	LIU Quansheng	Nandagang, Cangzhou City, Hebei Province	+86-13785814567	ndgsdglc@126.com	Authorized Use
		P2-YS-5-17	<i>Cygnus columbianus</i>	2020.11	WANG Kuan	WANG Kuan	Nandagang, Cangzhou City, Hebei Province	+86-18333071697	ndgsdglc@126.com	Authorized Use
		P2-YS-5-18	<i>Chlidonias hybrida</i>	2020.05						
		P2-YS-5-19	<i>Paradoxornis heudei</i>	2020.05	WANG Lijun	WANG Lijun	Nandagang, Cangzhou City, Hebei Province	+86-13373373378	ndgsdglc@126.com	Authorized Use
		P2-YS-5-20	<i>Panurus biarmicus</i>	2020.05	LIU Yanyan	LIU Yanyan	Nandagang, Cangzhou City, Hebei Province	+86-13832711599	123617831@qq.com	Authorized Use
		P2-YS-6-01	Salt ponds and tidal flats during high tide	2021.10	WANG Tong	WANG Tong	Building A 2010, Oriental Media, No.4 Guanghua Road, Chaoyang District, Beijing	+86-18600599918	guojiashengtai@163.com	Authorized Use

Id. No	Format (slide/ print/ text)	Caption		Date of Photo (mo/yr)	Photographer/Director of the video	Copyright owner	Contact details of copyright owner			Non-exclusive cession of rights
			Name (English/scientific)				Address	Tel/Fax	E-mail	
		P2-YS-6-02	Salt ponds	2018.09	LEI Weipan	LEI Weipan	College of Life Science, Beijing Normal University, Haidian District, Beijing	+86-13811124320	leiweipan@bnu.edu.cn	Authorized Use
		P2-YS-6-03	Tidal flat of Luannan wetland	2019.05	NEI Yongli	NEI Yongli	Nangang New Town 113-2-1002, Nanpu Development Zone, Caofeidian District, Tangshan city	+86-15512001856	15512001856@163.com	Authorized Use
		P2-YS-6-04	The landscape of salt ponds	2021.04	FANG Fuhe	FANG Fuhe	Xuguanzhai Village, Bencheng Town, Luannan County, Hebei Province	+86-13903156858	fangfuhe@163.com	Authorized Use
		P2-YS-6-05	The Luanan Wetland has received international attention	2018.05	LEI Weipan	LEI Weipan	College of Life Science, Beijing Normal University, Haidian District, Beijing	+86-13811124320	leiweipan@bnu.edu.cn	Authorized Use
		P2-YS-6-06	Carrying out natural education	2021.04	ZHANG Fengxiang	ZHANG Fengxiang	Natural Resources and Planning Bureau of Luannan County	+86-15232661009	lnzhangfengxiang@163.com	Authorized Use
		P2-YS-6-07	<i>Sternula albifrons</i>	2020.05	FANG Fuhe	FANG Fuhe	Xuguanzhai Village, Bencheng Town, Luannan County, Hebei Province	+86-13903156858	fangfuhe@163.com	Authorized Use
		P2-YS-6-08	<i>Recurvirostra avosetta</i>	2018.05	LEI Weipan	LEI Weipan	College of Life Science, Beijing Normal University, Haidian District, Beijing	+86-13811124320	leiweipan@bnu.edu.cn	Authorized Use
		P2-YS-6-09	<i>Himantopus himantopus</i>	2020.05	FANG Fuhe	FANG Fuhe	Xuguanzhai Village, Bencheng Town, Luannan County, Hebei Province	+86-13903156858	fangfuhe@163.com	Authorized Use

Id. No	Format (slide/ print/ text)	Caption		Date of Photo (mo/yr)	Photographer/Director of the video	Copyright owner	Contact details of copyright owner			Non-exclusive cession of rights
			Name (English/scientific)				Address	Tel/Fax	E-mail	
		P2-YS-6-10	<i>Limosa limosa</i>	2018.04	ZHU Bingrun	ZHU Bingrun	Almastraat 34, 9716CX, Groningen, The Netherlands	+31-6-29907355	drewbingrun@outlook.com	Authorized Use
		P2-YS-6-11	<i>Calidris canutus</i>	2014.05	Matt Slaymaker	Matt Slaymaker	Flat 3, 37 Cheddon Road, Taunton TA2 7BN United Kingdom	+44-7476-940949	Mattslaymaker@hotmail.co.uk	Authorized Use
		P2-YS-6-12	<i>Calidris ruficollis</i>	2014.05	Adrian Boyle	Adrian Boyle	PO box 3089 Broome Western Australia 6725	+61-407194478	adrianboyle@westnet.com.au	Authorized Use
		P2-YS-6-13	<i>Calidris acuminata</i>	2014.05						
		P2-YS-6-14	<i>Calidris canutus</i>	2014.05						
		P2-YS-6-15	<i>Calidris ferruginea</i>	2014.05						
		P2-YS-6-16	<i>Charadrius alexandrinus</i>	2019.02	NEI Yongli	NEI Yongli	Nangang New Town 113-2-1002, Nanpu Development Zone, Caofeidian District, Tangshan city	+86-15512001856	15512001856@163.com	Authorized Use
		P2-YS-6-17	Bird flocks on the tidal flat	2009.11	WANG Jianmin	WANG Jianmin	Room 1501, 8# Building, Haining Bay, Hangu District of Binhai New Area, Tianjin City	+86-18920710170	444518206@qq.com	Authorized Use
		P2-YS-6-18	<i>Ichthyaelus relictus</i>	2018.04	ZHU Bingrun	ZHU Bingrun	Almastraat 34, 9716CX, Groningen, The Netherlands	+31-6-29907355	drewbingrun@outlook.com	Authorized Use
		P2-YS-6-19	Bird flocks in Zuidong Wetland	2020.04	ZHENG Wenzhong	ZHENG Wenzhong	Wildlife Protection Association of Tangshan City, South Yard of	+86-13703158887	zhengWZ51@126.com	Authorized Use



Id. No	Format (slide/print/text)	Caption		Date of Photo (mo/yr)	Photographer/Director of the video	Copyright owner	Contact details of copyright owner			Non-exclusive cession of rights
			Name (English/scientific)				Address	Tel/Fax	E-mail	
		P2-YS-6-20	Bird flocks in Zuidong Wetland	2020.04			Forest Public Security Bureau of Tangshan City			
		P2-YS-7-01	Qilihai landscape	2018.09	FEI Mingjian	FEI Mingjian	Fuxing Shop, the New Opening of Tuanlin Township, Changli Country, Qinhuangdao City	+86-13933640789	1749538429@qq.com	Authorized Use
		P2-YS-7-02	Qilihai landscape	2018.1						
		P2-YS-7-03	Qilihai sand dune landscape	2018.04	XU Denghua	XU Denghua	No.238 Taishan Road, Qinhuangdao City	+86-335-5911055	qhdlyjlyz.163.com	Authorized Use
		P2-YS-7-04	Qilihai sand dune landscape	2017.06	Qinhuangdao Birds Protection Association	Qinhuangdao Birds Protection Association	No.72 Jiannan Road, Beidaihe District, Qinhuangdao City	+86-13903330335	qhdgnh@126.com	Authorized Use
		P2-YS-7-05	Qilihai vegetation	2020.10	FEI Mingjian	FEI Mingjian	Fuxing Shop, the New Opening of Tuanlin Township, Changli Country, Qinhuangdao City	+86-13933640789	1749538429@qq.com	Authorized Use
		P2-YS-7-06	Qilihai vegetation landscape	2017.06	Qinhuangdao Birds Protection Association	Qinhuangdao Birds Protection Association	No.72 Jiannan Road, Beidaihe District, Qinhuangdao City	+86-13903330335	qhdgnh@126.com	Authorized Use
		P2-YS-7-07	Saving wild birds	2020.07	JIN Zhaoguang	JIN Zhaoguang	International Sand Skating Center Northbound, Changli Country, Qinhuangdao City, Hebei province	+86-335-2081378	clbhqglejsk@163.com	Authorized Use
		P2-YS-7-08	Birdwatching activity	2021.03	ZHAO Zhihong	ZHAO Zhihong	International Sand Skating Center Northbound, Changli Country,	+86-335-2081378	clbhqglejsk@163.com	Authorized Use

Id. No	Format (slide/print/text)	Caption		Date of Photo (mo/yr)	Photographer/Director of the video	Copyright owner	Contact details of copyright owner			Non-exclusive cession of rights
			Name (English/scientific)				Address	Tel/Fax	E-mail	
							Qinhuangdao City, Hebei province			
		P2-YS-7-09	<i>Cygnus cygnus</i>	2019.03	TONG Yongli	TONG Yongli	No.302, Unit 3, 2# Building, Real Estate Bureau Family Dormitory Building, Beixin Section of Third Street, Changli County, Qinhuangdao City, Hebei province	+86-13785992898	235467401@qq.com	Authorized Use
		P2-YS-7-10	<i>Anser fabalis</i>	2021.01						
		P2-YS-7-11	<i>Tadorna tadorna</i>	2019.12						
		P2-YS-7-12	<i>Chroicocephalus ridibundus</i>	2019.03						
		P2-YS-7-13	<i>Anas zonorhyncha</i>	2018.12	TONG Yongli	TONG Yongli	No.302, Unit 3, 2# Building, Real Estate Bureau Family Dormitory Building, Beixin Section of Third Street, Changli County, Qinhuangdao City, Hebei province	+86-13785992898	235467401@qq.com	Authorized Use
		P2-YS-7-14	Bird flocks	2018.12						
		P2-YS-7-15	<i>Limosa limosa</i>	2019.05						
		P2-YS-7-16	<i>Grus japonensis</i>	2020.1						
		P2-YS-7-17	<i>Charadrius alexandrinus</i>	2019.03						
		P2-YS-7-18	<i>Anser fabalis</i>	2021.03						

Id. No	Format (slide/ print/ text)	Caption		Date of Photo (mo/yr)	Photographer/Director of the video	Copyright owner	Contact details of copyright owner			Non-exclusive cession of rights
			Name (English/scientific)				Address	Tel/Fax	E-mail	
		P2-YS-7-19	<i>Leucogeranus leucogeranus</i> , <i>Cygnus columbianus</i>	2020.11						
		P2-YS-7-20	<i>Grus grus</i>	2018.12						
		P2-YS-7-21	Sunset and swan	2019.03						
		P2-YS-8-01	Panoramic view of Dachaping	2019.10	XU Denghua	XU Denghua	No.238 Taishan Road, Qinhuangdao City	+86-335-5911055	qhdlyjlyz.163.com	Authorized Use
		P2-YS-8-02	Landscape of Dachaping	2016.09						
		P2-YS-8-03	Landscape of Dachaping	2021.08	YANG Shaoshi	YANG Shaoshi	Room 212, No.114 Lianfeng Road, Beidaihe District, Qinhuangdao city	+86-15003355904	bdhqfjb@163.com	Authorized Use
		P2-YS-8-04	Landscape of Dachaping	2021.08						
		P2-YS-8-05	Overlooking landscape and gulls of Dachaping	2017.03	Qinhuangdao Birds Protection Association	Qinhuangdao Birds Protection Association	No.72 Jiannan Road, Beidaihe District, Qinhuangdao City	+86-13903330335	qhdgnh@126.com	Authorized Use
		P2-YS-8-06	On site capacity training for wetland management	2017.08						
		P2-YS-8-07	Natural education	2016.06	Beidaihe National Wetland Park, Hebei Province	Beidaihe National Wetland Park, Hebei Province	No.36 Binhai Avenue, Beidaihe District, Qinhuangdao city	+86-335-4689151	bdhsdbgs@163.com	Authorized Use
		P2-YS-8-08	<i>Numenius madagascariensis</i>	2018.09	Qinhuangdao Birds Protection Association		No.72 Jiannan Road, Beidaihe District, Qinhuangdao City	+86-13903330335	qhdgnh@126.com	Authorized Use

Id. No	Format (slide/print/text)	Caption		Date of Photo (mo/yr)	Photographer/Director of the video	Copyright owner	Contact details of copyright owner			Non-exclusive cession of rights
			Name (English/scientific)				Address	Tel/Fax	E-mail	
		P2-YS-8-09	Gulls	2019.04		Qinhuangdao Birds Protection Association				
		P2-YS-8-10	<i>Grus grus</i>	2018.11						
		P2-YS-8-11	<i>Rallus indicus</i>	2019.06						
		P2-YS-8-12	<i>Leucogeranus leucogeranus</i>	2010.03						
		P2-YS-8-13	<i>Grus japonensis</i>	2011.10	Qinhuangdao Birds Protection Association	Qinhuangdao Birds Protection Association	No.72 Jiannan Road, Beidaihe District, Qinhuangdao City	+86-13903330335	qhdgnh@126.com	Authorized Use
		P2-YS-8-14	<i>Ciconia boyciana</i>	2018.11						
		P2-YS-8-15	<i>Platalea minor</i>	2015.01						
		P2-YS-8-16	<i>Numenius phaeopus</i>	2018.09						
		P2-YS-8-17	Gulls	2019.04	ZHOU Xuefeng	ZHOU Xuefeng	Room 212, No.114 Lianfeng Road, Beidaihe District, Qinhuangdao city	+86-18003350258	454408856@qq.com	Authorized Use
		P2-YS-8-18	<i>Numenius phaeopus</i>	2020.09	QIAO Zhenzhong	QIAO Zhenzhong	Hongqixili 17—2—9, Heping Street, Haigang District, Qinhuangdao city, Hebei Province	+86-13503358909	qzz451228@163.com	Authorized Use

Id. No	Format (slide/print/text)	Caption		Date of Photo (mo/yr)	Photographer/Director of the video	Copyright owner	Contact details of copyright owner			Non-exclusive cession of rights
			Name (English/scientific)				Address	Tel/Fax	E-mail	
		P2-YS-9-01	Landscape of Shihenandao	2018.08	KONG Xianglin	KONG Xianglin	Qinhuangdao Customs Coal Monitoring Technology Center, No.188, East Section of Jianshe Street, Qinhuangdao City	+86-13833501036	781905@qq.com	Authorized Use
		P2-YS-9-02	Vegetation landscape of Shihenandao	2018.08	Qinhuangdao Birds Protection Association	Qinhuangdao Birds Protection Association	No.72 Jiannan Road, Beidaihe District, Qinhuangdao City	+86-13903330335	qhdgnh@126.com	Authorized Use
		P2-YS-9-03	Landscape of Shihenandao	2021.05	KONG Xianglin	KONG Xianglin	Qinhuangdao Customs Coal Monitoring Technology Center, No.188, East Section of Jianshe Street, Qinhuangdao City	+86-13833501036	781905@qq.com	Authorized Use
		P2-YS-9-04	Landscape of Shihenandao	2018.08	Qinhuangdao Birds Protection Association	Qinhuangdao Birds Protection Association	No.72 Jiannan Road, Beidaihe District, Qinhuangdao City	+86-13903330335	qhdgnh@126.com	Authorized Use
		P2-YS-9-05	Natural education in school	2014.11	DONG Baocheng	DONG Baocheng	No.189 Old Dragon Head Road, Shanhaiguan District, Qinhuangdao City	+86-335-5135021	shgfjb@163.com	Authorized Use
		P2-YS-9-06	Natural education in community	2014.11						
		P2-YS-9-07	<i>Circus spilonotus</i>	2018.05	KONG Xianglin	KONG Xianglin	Qinhuangdao Customs Coal Monitoring Technology Center, No.188, East Section of Jianshe Street, Qinhuangdao City	+86-13833501036	781905@qq.com	Authorized Use

Id. No	Format (slide/print/text)	Caption		Date of Photo (mo/yr)	Photographer/Director of the video	Copyright owner	Contact details of copyright owner			Non-exclusive cession of rights
			Name (English/scientific)				Address	Tel/Fax	E-mail	
		P2-YS-9-08	<i>Tadorna ferruginea</i>	2018.12	Qinhuangdao Birds Protection Association	Qinhuangdao Birds Protection Association	No.72 Jiannan Road, Beidaihe District, Qinhuangdao City	+86-13903330335	qhdgnh@126.com	Authorized Use
		P2-YS-9-09	<i>Emberiza aureola</i>	2018.05	KONG Xianglin	KONG Xianglin	Qinhuangdao Customs Coal Monitoring Technology Center, No.188, East Section of Jianshe Street, Qinhuangdao City	+86-13833501036	781905@qq.com	Authorized Use
		P2-YS-9-10	<i>Charadrius dubius</i>	2021.05						
		P2-YS-9-11	<i>Sternula albifrons</i>	2015.06	Qinhuangdao Birds Protection Association	Qinhuangdao Birds Protection Association	No.72 Jiannan Road, Beidaihe District, Qinhuangdao City	+86-13903330335	qhdgnh@126.com	Authorized Use
		P2-YS-9-12	<i>Haliaeetus albicilla</i>	2018.03						
		P2-YS-9-13	<i>Grus japonensis</i>	2020.12						
		P2-YS-9-14	<i>Ciconia boyciana</i>	2009.11	Qinhuangdao Birds Protection Association	Qinhuangdao Birds Protection Association	No.72 Jiannan Road, Beidaihe District, Qinhuangdao City	+86-13903330335	qhdgnh@126.com	Authorized Use
		P2-YS-9-15	<i>Platalea minor</i>	2013.05						
		P2-YS-9-16	<i>Panurus biarmicus</i>	2017.10						
		P2-YS-9-17	<i>Charadrius alexandrinus</i>	2021.05	KONG Xianglin	KONG Xianglin	Qinhuangdao Customs Coal Monitoring Technology Center, No.188, East Section of Jianshe Street, Qinhuangdao City	+86-13833501036	781905@qq.com	Authorized Use

Id. No	Format (slide/ print/ text)	Caption		Date of Photo (mo/yr)	Photographer/Director of the video	Copyright owner	Contact details of copyright owner			Non-exclusive cession of rights
			Name (English/scientific)				Address	Tel/Fax	E-mail	
		P2-YS-9-18	Cormorant and swan	2020.10	Qinhuangdao Birds Protection Association	Qinhuangdao Birds Protection Association	No.72 Jiannan Road, Beidaihe District, Qinhuangdao City	+86-13903330335	qhdgnh@126.com	Authorized Use
		P2-YS-10-01	Miraculous Liao river Estuary	2014.08	XIA Jianguo	XIA Jianguo	No.302, Building B, Liaodong Bay New Area, Panjin city, Liaoning Province	+86-427-2828410	pjslsj_2019@163.com	Authorized Use
		P2-YS-10-02	<i>Saundersilarus saundersi</i>	2004.06						
		P2-YS-10-03	<i>Saundersilarus saundersi</i>	2004.9						
		P2-YS-10-04	Intertidal Zone of Liaohe Estuary	2021.09	National Ecology	National Ecology	2010,Building A, Dongfangmeimi, No.4 Guanghua Road, Chaoyang District, Beijing	+86-18600599918	guojiashengtai@163.com	Authorized Use
		P2-YS-10-05	Mudflats - Home of the Scolopacidae	2012.05	XIA Jianguo	XIA Jianguo	No.302, Building B, Liaodong Bay New Area, Panjin city, Liaoning Province	+86-427-2828410	pjslsj_2019@163.com	Authorized Use
		P2-YS-10-06	<i>Suaeda salsa</i>	2010.09	ZONG Shuxing	ZONG Shuxing				
		P2-YS-10-07	<i>Numenius arquata</i>	2021.08	LI Yuxiang	LI Yuxiang				
		P2-YS-10-08	<i>Numenius madagascariensis</i>	2011.08	ZHANG Ming	ZHANG Ming				
		P2-YS-10-09	<i>Calidris tenuirostris</i>	2021.04	LI Yuxiang	LI Yuxiang				
		P2-YS-10-10	<i>Calidris tenuirostris</i>	2021.04	LI Yuxiang	LI Yuxiang		+86-427-2828410	pjslsj_2019@163.com	Authorized Use

Id. No	Format (slide/ print/ text)	Caption		Date of Photo (mo/yr)	Photographer/Director of the video	Copyright owner	Contact details of copyright owner			Non-exclusive cession of rights
			Name (English/scientific)				Address	Tel/Fax	E-mail	
		P2-YS-10-11	<i>Limosa lapponica</i>	2000.05	ZHANG Ming	ZHANG Ming	No.302, Building B, Liaodong Bay New Area, Panjin city, Liaoning Province			
		P2-YS-10-12	<i>Limosa limosa</i>	2011.09						
		P2-YS-10-13	<i>Haematopus ostralegus longipes</i>	2016.09	Administration Bureau of Liao River Estuary National Nature Reserve, Liaoning Province	Administration Bureau of Liao River Estuary National Nature Reserve, Liaoning Province				
		P2-YS-10-14	<i>Ichthyaelus relictus</i>	2021.09	PENG Hebo	PENG Hebo				
		P2-YS-10-15	<i>Grus japonensis</i>	2007.04	LIU Dongwei	LIU Dongwei	No.302, Building B, Liaodong Bay New Area, Panjin city, Liaoning Province	+86-427-2828410	pjslsj_2019@163.com	Authorized Use
		P2-YS-10-16	<i>Ciconia boyciana</i>	2014.11	XIA Jianguo	XIA Jianguo				
		P2-YS-10-17	<i>Platalea leucorodia</i>	2005.09						
		P2-YS-10-18	Rice and crab co-production	2008.09	Administration Bureau of Liao River Estuary National Nature Reserve, Liaoning Province	Administration Bureau of Liao River Estuary National Nature Reserve, Liaoning Province				
		P2-YS-10-19	<i>Phoca largha</i>	2009.04	ZONG Shuxing	ZONG Shuxing				



Id. No	Format (slide/ print/ text)	Caption		Date of Photo (mo/yr)	Photographer/Director of the video	Copyright owner	Contact details of copyright owner			Non-exclusive cession of rights
			Name (English/scientific)				Address	Tel/Fax	E-mail	
		P2-YS-10-20	Scientific Research Monitoring	2008.05	Administration Bureau of Liao River Estuary National Nature Reserve, Liaoning Province	Administration Bureau of Liao River Estuary National Nature Reserve, Liaoning Province				
		P2-YS-11-01	Snake Island	2009.08	WANG Xiaoping	WANG Xiaoping	NO.2, Youyi Road, Lvshun, Dalian City, Liaoning Province	+86-411-86383697	snakeisland@172.com	Authorized Use
		P2-YS-11-02	Jiutou Mountain	2021.10	National Ecology	National Ecology	2010,Building A, Dongfangmeimi, No.4 Guanghua Road, Chaoyang District, Beijing	+86-18600599918	guojiashengtai@163.com	Authorized Use
		P2-YS-11-03	Migratory Raptors	2006.09	WANG Xiaoping	WANG Xiaoping	NO.2, Youyi Road, Lvshun, Dalian City, Liaoning Province	+86-411-86383697	snakeisland@163.com	Authorized Use
		P2-YS-11-04	Egret Gulf of Snake Island	2018.07						
		P2-YS-11-05	<i>Accipiter gentilis</i>	2020.09						
		P2-YS-11-06	<i>Accipiter gularis</i>	2020.09						
		P2-YS-11-07	<i>Aquila chrysaetos</i>	2020.10						
		P2-YS-11-08	<i>Aquila nipalensis</i>	2020.10						
		P2-YS-11-09	<i>Buteo japonicus</i>	2015.10						

Id. No	Format (slide/ print/ text)	Caption		Date of Photo (mo/yr)	Photographer/Director of the video	Copyright owner	Contact details of copyright owner			Non-exclusive cession of rights
			Name (English/scientific)				Address	Tel/Fax	E-mail	
		P2-YS-11-10	<i>Circus cyaneus</i>	2020.10						
		P2-YS-11-11	<i>Buteo hemilasius</i>	2018.11						
		P2-YS-11-12	<i>Pernis ptilorhynchus</i>	2015.09						
		P2-YS-11-13	<i>Milvus migrans</i>	2020.10						
		P2-YS-11-14	<i>Falco amurensis</i>	2020.09						
		P2-YS-11-15	<i>Circus melanoleucos</i>	2018.09						
		P2-YS-11-16	<i>Clanga clanga</i>	2013.10	WANG Xiaoping	WANG Xiaoping	NO.2, Youyi Road, Lvshun, Dalian City, Liaoning Province	+86-411-86383697	snakeisland@163.com	Authorized Use
		P2-YS-11-17	<i>Falco peregrinus</i>	2018.09						
		P2-YS-11-18	<i>Asio flammeus</i>	2011.10						
		P2-YS-11-19	<i>Otus lettia</i>	2010.11						
		P2-YS-11-20	<i>Asio otus</i>	2017.10						
		P2-YS-11-21	<i>Aquila chrysaetos</i>	2014.04						

Id. No	Format (slide/ print/ text)	Caption		Date of Photo (mo/yr)	Photographer/Director of the video	Copyright owner	Contact details of copyright owner			Non-exclusive cession of rights
			Name (English/scientific)				Address	Tel/Fax	E-mail	
		P2-YS-11-22	<i>Accipiter nisus</i>	2015.09						
		P2-YS-11-23	<i>Numenius phaeopus</i>	2012.04						
		P2-YS-11-24	<i>Larus crassirostris</i>	2020.01						
		P2-YS-11-25	<i>Ciconia nigra</i>	2016.10						
		P2-YS-11-26	<i>Emberiza aureola</i>	2020.05						
		P2-YS-11-27	<i>Egretta eulophotes</i>	2013.06						
		P2-YS-11-28	<i>Asterias amurensis</i>	2014.07						
		P2-YS-11-29	<i>Gloydius shedaoensis</i>	2014.09						
		P2-YS-11-30	Bird catching of <i>Gloydius shedaoensis</i>	2018.11						
		P2-YS-11-31	Bird rescue	2017.02	HAO Zhi	HAO Zhi	NO.2, Youyi Road, Lvshun, Dalian City, Liaoning Province	+86-18641183792	slzybc@163.com	Authorized Use
		P2-YS-11-32	Snake Island science exhibition	2017.08	WANG Xiaoping	WANG Xiaoping	NO.2, Youyi Road, Lvshun, Dalian City, Liaoning Province	+86-411-86383697	snakeisland@163.com	Authorized Use

Id. No	Format (slide/ print/ text)	Caption		Date of Photo (mo/yr)	Photographer/Director of the video	Copyright owner	Contact details of copyright owner			Non-exclusive cession of rights
			Name (English/scientific)				Address	Tel/Fax	E-mail	
		P2-YS-12-01	Mudflat in Dandong	2021.10	National Ecology	National Ecology	2010, Building A, Dongfangmeimi, No.4 Guanghai Road, Chaoyang District, Beijing	+86-18600599918	guojiashengtai@163.com	Authorized Use
		P2-YS-12-02	<i>Limosa lapponica</i>	2021.03	LIU Mingyu	LIU Mingyu	NO.17, Zhongfu Street, Yuanbao District, Dandong city, Liaoning Province	+86-13941588880	279747172@qq.com	Authorized Use
		P2-YS-12-03	Mudflat	2020.03	ZHOU Guiping	ZHOU Guiping	NO.153, Donggang Shi Nan Lu, Dandong City, Liaoning Province	+86-15942525556	188213259@qq.com	Authorized Use
		P2-YS-12-04	Group of birds flying in the sky	2009.04	CHUNYU Changsheng	CHUNYU Changsheng	NO.6, Xingyi Road, Zhenxing District, Dandong City, Liaoning Province	+86-13124156218	652114447@qq.com	Authorized Use
		P2-YS-12-05	Group of birds flying in the sky	2021.04	ZHOU Guiping	ZHOU Guiping	NO.153, Donggang Shi Nan Lu, Dandong City, Liaoning Province	+86-15942525556	188213258@qq.com	Authorized Use
		P2-YS-12-06	<i>Charadrius mongolus</i>	2014.03	BAI Qingquan	BAI Qingquan	NO.110, Liuwei Road, Zhenxing District, Dandong city, Liaoning Province	+86-13898522011	bqqwhite@163.com	Authorized Use
		P2-YS-12-07	<i>Tringa guttifer</i>	2011.04						
		P2-YS-12-08	<i>Calidris pygmeus</i>	2000.02	LIU Mingyu	LIU Mingyu	NO.17, Zhongfu Street, Yuanbao District, Dandong city, Liaoning Province	+86-13941588880	279747172@qq.com	Authorized Use
		P2-YS-12-09	<i>Grus monacha</i>	2021.07						
		P2-YS-12-10	<i>Calidris tenuirostris</i>	2018.04	BAI Qingquan	BAI Qingquan	NO.110, Liuwei Road, Zhenxing District, Dandong city, Liaoning Province	+86-13898522011	bqqwhite@163.com	Authorized Use

Id. No	Format (slide/print/text)	Caption		Date of Photo (mo/yr)	Photographer/Director of the video	Copyright owner	Contact details of copyright owner			Non-exclusive cession of rights
			Name (English/scientific)				Address	Tel/Fax	E-mail	
		P2-YS-12-11	<i>Numenius madagascariensis</i>	2021.04	CHUNYU Changsheng	CHUNYU Changsheng	NO.6, Xingyi Road, Zhenxing District, Dandong City, Liaoning Province	+86-13124156218	652114447@qq.com	Authorized Use
		P2-YS-12-12	<i>Haematopus ostralegus</i>	2018.04	ZHOU Guiping	ZHOU Guiping	NO.153, Donggang Shi Nan Lu, Dandong City, Liaoning Province	+86-15942525556	188213259@qq.com	Authorized Use
		P2-YS-12-13	<i>Platalea minor &amp; Larus crassirostris</i>	2017.05						
		P2-YS-12-14	<i>Aix galericulata</i>	2019.04						
		P2-YS-12-15	<i>Himantopus himantopus</i>	2018.04	HUANG Dongqing	HUANG Dongqing	NO.16, Jinshan Street, Zhenxing District, Dandong city	+86-13842588076	129917@qq.com	Authorized Use
		P2-YS-12-16	<i>Podiceps cristatus</i>	2017.07	ZHOU Guiping	ZHOU Guiping	NO.153, Donggang Shi Nan Lu, Dandong City, Liaoning Province	+86-15942525556	188213259@qq.com	Authorized Use
		P2-YS-12-17	<i>Podiceps cristatus</i>	2016.06						
		P2-YS-12-18	<i>Tringa totanus</i>	2013.04	HUANG Dongqing	HUANG Dongqing	NO.16, Jinshan Street, Zhenxing District, Dandong city	+86-13842588076	129917@qq.com	Authorized Use
		P2-YS-12-19	<i>Charadrius dubius</i>	2016.05						
		P2-YS-12-20	Bird survey	2020.03	Service Center for the Development of Forestry and Grassland at Dandong City	Service Center for the Development of Forestry and	NO.2, Zhongxin North Road, Langtou Town, Zhenxing District, Dandong city	+86-41-52593123	809877020@qq.com	Authorized Use
		P2-YS-12-21	Bird survey	2020.03						

Id. No	Format (slide/ print/ text)	Caption		Date of Photo (mo/yr)	Photographer/Director of the video	Copyright owner	Contact details of copyright owner			Non-exclusive cession of rights
			Name (English/scientific)				Address	Tel/Fax	E-mail	
		P2-YS-12-22	Bird banding	2009.05		Grassland at Dandong City				
		P2-YS-12-23	Global comunication & Public education	2015.04						
		P2-YS-13-01	Dachangshan Island	2021.10	National Ecology	National Ecology	2010,Building A, Dongfangmeimi, No.4 Guanghai Road, Chaoyang District, Beijing	+86-18600599918	guojiashengtai@163.com	Authorized Use
		P2-YS-13-02	Changshan Archipelago	2020.12	JIA Yifei	JIA Yifei	506, Experimental Building, Beijing Forestry University, NO.35, Qinghua East Road, Haidian District, Beijing	+86-10-62336397	jiayifei@bjfu.edu.cn	Authorized Use
		P2-YS-13-03	Changshan Archipelago	2020.11						
		P2-YS-13-04	Fantuozi Islet of Guanglu Island	2021.10	National Ecology	National Ecology	2010,Building A, Dongfangmeimi, No.4 Guanghai Road, Chaoyang District, Beijing	+86-18600599918	guojiashengtai@163.com	Authorized Use
		P2-YS-13-05	<i>Egretta eulophotes</i>	2015.06	ZHANG Zhongmin	ZHANG Zhongmin	Dalian Changhai County Cultural Center	+86-13500760666	1651256462@qq.com	Authorized Use
		P2-YS-13-06	<i>Egretta eulophotes</i>	2015.06	WANG Jie	WANG Jie	Changhai County Medical Security Bureau	+86-18018906321	2774649@qq.com	Authorized Use
		P2-YS-13-07	<i>Phalacrocorax pelagicus</i>	2020.12	WU Lan	WU Lan	NO.35, Qinghua East Road, Haidian District, Beijing	+86-13811194908	wulan.pku@gmail.com	Authorized Use
		P2-YS-13-08	<i>Phalacrocorax capillatus</i>	2021.03						
		P2-YS-13-09	<i>Haematopus ostralegus</i>	2021.03						

Id. No	Format (slide/ print/ text)	Caption		Date of Photo (mo/yr)	Photographer/Director of the video	Copyright owner	Contact details of copyright owner			Non-exclusive cession of rights
			Name (English/scientific)				Address	Tel/Fax	E-mail	
		P2-YS-13-10	<i>Bucephala clangula</i>	2016.01	ZHANG Zhongmin	ZHANG Zhongmin	Dalian Changhai County Cultural Center	+86-13500760666	1651256462@qq.com	Authorized Use
		P2-YS-13-11	<i>Calonectris leucomelas</i>	2021.03	WU Lan	WU Lan	NO.35, Qinghua East Road, Haidian District, Beijing	+86-13811194908	wulan.pku@gmail.com	Authorized Use
		P2-YS-13-12	<i>Larus crassirostris</i>	2021.03						
		P2-YS-13-13	<i>Mergus serrator</i>	2017.01	Service Center for Natural Resources Affairs of Changhai County	Service Center for Natural Resources Affairs of Changhai County	No.42, Dongshan D Park, Dachangshandao Town, Changhai County, Dalian city, Liaoning Province	+86-411-89889876	634334649@qq.com	Authorized Use
		P2-YS-13-14	<i>Falco peregrinus</i>	2021.03	WU Lan	WU Lan	NO.35, Qinghua East Road, Haidian District, Beijing	+86-13811194908	wulan.pku@gmail.com	Authorized Use
		P2-YS-13-15	<i>Aquila chrysaetos</i>	2021.03						
		P2-YS-13-16	<i>Phoca largha</i>	2016.12						
		P2-YS-13-17	<i>Sousa chinensis</i>	2021.04	XU Jing	XU Jing	Dachangshan Island Town, Changhai County, Dalian City, Liaoning Province	+86-15841123220	948980292@qq.com	Authorized Use
		<b>Part 3 Yellow Sea-Bohai Gulf region: A common stopover site for birds migrating to Siberia and Alaska</b>								
		P3-01	<i>Calidris pygmeus</i>	2015.06	JIA Yifei	JIA Yifei	506, Experimental Building, Beijing Forestry University, NO.35, Qinghua East Road, Haidian District, Beijing	+86-10-62336397	jiayifei@bjfu.edu.cn	Authorized Use

Id. No	Format (slide/print/text)	Caption		Date of Photo (mo/yr)	Photographer/Director of the video	Copyright owner	Contact details of copyright owner			Non-exclusive cession of rights
			Name (English/scientific)				Address	Tel/Fax	E-mail	
		P3-02	<i>Calidris canutus</i>	2015.06	MU Tong	MU Tong	Unit 1, Building 15, Xuefu Garden, Lianhua Street, High-tech Zone, Zhengzhou, Henan	+86-15617865087	mutongpku@gmail.com	Authorized Use
		P3-03	<i>Calidris canutus</i>	2015.06						
		P3-04	<i>Calidris temminckii</i>	2019.07						
		P3-05	<i>Xenus cinereus</i>	2016.07						
		P3-06	<i>Calidris pygmeus</i>	2018.06						
		P3-07	<i>Calidris canutus</i>	2015.07	MU Tong	MU Tong	Unit 1, Building 15, Xuefu Garden, Lianhua Street, High-tech Zone, Zhengzhou, Henan	+86-15617865087	mutongpku@gmail.com	Authorized Use
		P3-08	<i>Phalaropus lobatus</i>	2016.07						
		P3-09	<i>Calidris pygmeus</i>	2017.06						
3	Video	Video			National Ecology	National Ecology	2010,Building A, Dongfangmeimi, No.4 Guanghua Road, Chaoyang District, Beijing	+86-18600599918	guojiashengtai@163.com	Authorized Use



**Convention Concerning the Protection of  
the World Cultural and Natural Heritage  
Natural Heritage: China**

**Migratory Bird Sanctuaries along the  
Coast of Yellow Sea-Bohai Gulf of  
China (Phase II)**

**Annex 8 Excerpts of Relevant Laws and  
Regulations**

**National Forestry and Grass Administration  
People's Republic of China**

**2022.1**

## Contents

1 National Laws and Regulations .....	1
1.1 Constitution of the People's Republic of China (Excerpt).....	1
1.2 Criminal Law of the People's Republic of China (Excerpt) .....	1
1.3 Water Law of the People's Republic of China (Excerpt) .....	2
1.4 Marine Environment Protection Law of the People's Republic of China	2
1.5 Law of the People's Republic of China on The Protection of wildlife ....	3
1.6 Law of the People's Republic of China on Environmental Protection ..	10
1.7 Highway Law of the People's Republic of China (Excerpt) .....	24
1.8 Regulations of the People's Republic of China on Nature Reserves (excerpts).....	24
1.9 Regulations on Scenic and Historic Areas (excerpts) .....	26
1.10 Regulations of the People's Republic of China on the Protection of Terrestrial Wild Animals (excerpts) .....	27
1.11 Regulations of the People's Republic of China on the Protection of Aquatic Wild Animals (excerpts).....	28
1.12 Regulation of the People's Republic of China on the Implementation of Terrestrial Wildlife Protection.....	29
1.13 Forestry Law of the People's Republic of China (excerpts) .....	41
1.14 The Yangtze River Protection Law of the People's Republic of China (excerpts).....	42
1.15 Measures for the Administration of Special Marine Protected Areas (excerpts).....	44
2 National Regulatory Documents .....	47
2.1 Outline of China ecological environmental protection (Excerpt).....	47
2.2 Reinforce the Management of the Nature Reserves (Excerpt) .....	47
2.3 Reinforce the Supervision of Construction Projects in Nature Reserves (Excerpt) .....	48
2.4 Circular of the General Office of the State Council on Issuing the Scheme of Wetland Protection and Restoration System (Excerpts from No.89 [2016] of the General Office of the State Council).....	49

2.5 Circular of the State Council on Strengthening the Protection of Coastal Wetlands and Strictly Controlling Land Reclamation from Sea (Guo Fa [2018] No.24 Excerpts) .....	52
2.6 Rules on Wetland Protection and Management .....	55
2.7 Circular of the Ministry of Natural Resources on Further Clarifying the Relevant Requirements for Resolving the Historical Issues on Land Reclamation from Sea (Natural Resources Regulations (2018) No.7) .....	56
2.8 Measures for the Administration of National Wetland Parks (Excerpts) .....	57
2.9 Measures for the Sheltering and Rescue of Wild Animals (Excerpts)...	58
2.10 Circular of the National Forestry and Grassland Administration on Fully Leveraging the Social Functions of Various Types of Natural Protected Areas to Carry out Nature Education (Excerpts).....	59
2.11 Circular of the National Forestry and Grassland Administration on Enhancing the Protection of Migratory Birds in Autumn and Winter (Lin Hu Fa No. 92 [2019] - Excerpts) .....	61
2.12 Circular of the National Forestry and Grassland Administration on Strengthening the Protection of Wild Animals Including Birds in Autumn and Winter (Lin Hu Fa 2020 No.89 -Excerpts) .....	62
2.13 Circular of the Ministry of Ecology and Environment on Printing and Issuing the Interim Measures for the Supervision of Ecological Environment of the Natural Protected Areas (Huan Sheng Tai (2020) No. 72—Excerpts) .....	65
2.14 Opinions of the National Forestry and Grassland Administration and the Ministry of Science and Technology on Strengthening the Popular Science Education Related to Forestry and Grassland" (Lin Ke Fa (2020) No.29- Excerpts).....	67
3 Regulations and Documents of Provinces and Municipalities Directly under the Central Government.....	71
3.1 Regulations of Shanghai Municipality on Environmental Protection ...	71
3.2 Regulations of Shandong Province on Environmental Protection.....	72
3.3 Measures for the Conservation of Wetlands in Shandong Province .....	74
3.4 Measures of Shandong Province for Implementing the Law of the People's Republic of China on the Protection of Wildlife .....	76
3.5 Regulations of Shandong Province on Marine Environmental Protection .....	77
3.6 Regulations of Hebei Province on Ecological Environmental Protection .....	79

3.7 Regulations of Hebei Province on Wetland Protection.....	80
3.8 Regulations of Hebei Province on Protection of Terrestrial Wild Animals .....	83
3.9 Regulations of Hebei Province on Wetland Protection.....	85
3.10 Regulations of Liaoning Province on Wetland Conservation .....	87
3.11 Measures of Liaoning Province on Marine Environment Protection ..	88
4 Regulations and Documents of Local-level Protected Areas.....	91
4.1 Shanghai.....	91
4.1.1 Measures for Administration of Dongtan Bird Nature Reserve, Chongming, Shanghai (2015 Amendment).....	91
4.1.2 Regulations of Shanghai Chongming on Game Reserves .....	92
4.2 Dongying.....	94
4.2.1 Regulations of Dongying City on Wetland Conservation.....	94
4.2.2 Regulations on National Nature Reserve of the Yellow River Delta, Shandong.....	96
4.3 Tangshan .....	97
4.3.1 Regulations on Management of Provincial Wetland Park in Nanpu Zuidong, Luannan, Hebei .....	97
4.4 Cangzhou .....	98
4.4.1 Regulations of Cangzhou on Ecological Environment Protection Responsibilities (for Trial Implementation).....	98
4.5 Qinhuangdao .....	99
4.5.1 Regulations of Qinhuangdao on Coastline Protection .....	99
4.6 Panjin .....	101
4.6.1 Regulations of Panjin on Wetland Conservation .....	101
4.6.2 Measures for Administration of Liaohe Estuary (Shuangtai Estuary) National Nature Reserve, Liaoning.....	105
4.7 Dalian.....	107
4.7.1 Measures for Administration of Laotie Hill National Nature Reserve on Snake Island .....	107
4.8 Dandong.....	108
4.8.1 Regulations on Dandong Yalu River Estuary Wetland as National	

Nature Reserve.....	108
4.9 Changhai .....	110
4.9.1 Opinions on Management of Inter-tidal Zones in Changhai County (for Trial Implementation) .....	110
4.9.2 Regulations on Dalian Changhai Provincial Nature Reserve for Rare Marine Wildlife .....	111
4.9.3 Measures for Administration of Dalian Changhai Provincial Nature Reserve for Rare Marine Wildlife .....	113

# **1 National Laws and Regulations**

## **1.1 Constitution of the People's Republic of China (Excerpt)**

Revised in accordance with Amendment to the Constitution adopted at the 2nd Meeting of the Standing Committee of the Tenth National People's Congress on March 14, 2004.

**Article 9** The state ensures the rational use of natural resources and protects rare animals and plants. Appropriation or damaging of natural resources by any organization or individual by whatever means is prohibited.

**Article 22** The state protects sites of scenic and historical interest, valuable cultural monuments and relics and other significant items of China's historical and cultural heritage.

**Article 26** The state protects and improves the environment in which people live and the ecological environment. It prevents and controls pollution and other public hazards. The state organizes and encourages afforestation and the protection of forests.

## **1.2 Criminal Law of the People's Republic of China (Excerpt)**

**Article 341** Those who illegally hunt and kill rare and endangered wild animals which are under the state key production plan or illegally purchase, transport or sell those rare and endangered wild animals and their manufactured products are to be sentenced to not more than five years of fixed-term imprisonment or criminal detention, and may in addition be sentenced to a fine. In serious cases, those law offenders are to be sentenced to not less than five years and not more than 10 years of fixed-term imprisonment, and may in addition be sentenced to a fine. In especially serious cases, those law offenders are to be sentenced to more than 10 years of fixed-term imprisonment, and in addition be sentenced to a fine and confiscation of their properties.

Those who violate hunting law and regulations and use tools and methods which are forbidden to be used in no-hunting zones or periods and thus damage the source of wild animals and if the situation is serious are to be sentenced to not more than five years of fixed-term imprisonment or criminal detention or control, and in addition be sentenced to a fine.

**Article 343** Those who violate the stipulations of the Mineral Resources Law and start to engage in mining operation without first obtaining a mining permit, those who wantonly enter state mining areas which are important to the national economy or mining areas of other people, those who want only excavate special minerals protected by the state and those who continue mining operations and cause damage to mineral resources after receiving a notice to stop such operation are to be sentenced to not more than three years of fixed-term imprisonment or criminal detention or control, and in addition be sentenced to a fine or may be sentenced to a simple fine. Those whose operations have caused serious damages to natural resources are to be sentenced to not less than three years and not more than seven years of fixed-term imprisonment, and in addition be sentenced to a fine.

Those who violate the stipulations of Mineral Resources Law and use destructive mining methods to tap mineral resources and have caused serious damages to mineral resources are to be sentenced to not more than five years of fixed-term imprisonment or criminal detention, and in addition be sentenced to a fine.

## **1.3 Water Law of the People's Republic of China (Excerpt)**

**Article 5** The state shall protect water resources and adopt effective measures to preserve natural flora, plant trees and grow grass, conserve water sources, prevent and control soil erosion and improve the ecological environment.

## **1.4 Marine Environment Protection Law of the People's Republic of China**

(**Adopted at 24<sup>th</sup> Meeting of the** Standing Committee of the Seventh National People's Congress and promulgated by Order No. 5 of the President of the People's Republic of China on August 23, 1982. Revised at 13<sup>th</sup> **Meeting of the** Standing Committee of the Seventh National People's Congress and promulgated by Order No. 9 of the President of the People's Republic of China on December 25, 1999. Revised at 6<sup>th</sup> **Meeting of the** Standing Committee of the Seventh National People's Congress and promulgated by Order No. 2 of the President of the People's Republic of China on December 28, 2013 )

**Article 20** The State Council and the coastal local people's governments shall adopt effective measures to protect typical and representative marine ecosystems such

as mangroves, coral reefs, coastal wetlands, islands, bays, estuaries and important fishery waters, protect sea areas where rare and dying out marine organisms are naturally and densely scattered, protect habitats of marine organisms having important economic value, and protect marine natural historic relics and natural landscapes having great scientific and cultural significance.

**Article 29** The categories of pollutant must strictly obey the standards and regulations.

## **1.5 Law of the People's Republic of China on The Protection of wildlife**

(Adopted at the Fourth Meeting of the Standing Committee of the Seventh National People's Congress and promulgated by Order No. 9 of the President of the People's Republic of China on November 8, 1988 and effective as of March 1, 1989; Revised at the 11th session of the standing committee of the 10<sup>th</sup> National People's Congress of the People's Republic of China on August 28, 2004)

### **Chapter I General Provisions**

**Article 1** This Law is formulated for the purpose of protecting and saving the species of wildlife which are rare or near extinction, protecting, developing and rationally utilizing wildlife resources and maintaining ecological balances.

**Article 2** All activities within the territory of the People's Republic of China concerning the protection, domestication, breeding, development and utilization of species of wildlife must be conducted in conformity with this Law.

The wildlife protected under this Law refers to the species of terrestrial and aquatic wildlife which are rare or near extinction and the species of terrestrial wildlife which are beneficial or of important economic or scientific value.

The wildlife referred to in the provisions of this Law means the wildlife which shall enjoy protection as prescribed in the preceding paragraph.

As regards the protection of the species of aquatic wildlife other than those which are rare or near extinction, the provisions of the Fisheries Law shall apply.

**Article 3** Wildlife resources shall be owned by the state.

The state protects the lawful rights and interests of units and individuals engaged in the development or utilization of wildlife resources according to law.

**Article 4** The state shall pursue a policy of strengthening the protection of wildlife resources, actively domesticating and breeding the species of wildlife, and rationally



developing and utilizing wildlife resources, and encourage scientific research on wildlife. Units and individuals that have made outstanding achievements in the protection of wildlife resources, in scientific research on wildlife, or in the domestication and breeding of wildlife shall be awarded by the state.

**Article 5** Citizens of the People's Republic of China shall have the duty to protect wildlife resources and the right to inform the authorities of or file charges against acts of seizure or destruction of wildlife resources.

**Article 6** The governments at various levels shall strengthen the administration of wildlife resources and formulate plans and measures for the protection, development and rational utilization of wildlife resources.

**Article 7** The departments of forestry and fisheries administration under the State Council shall be respectively responsible for the nationwide administration of terrestrial and aquatic wildlife.

The departments of forestry administration under the governments of provinces, autonomous regions and municipalities directly under the Central Government shall be responsible for the administration of terrestrial wildlife in their respective areas. The departments in charge of the administration of terrestrial wildlife under the governments of autonomous prefectures, counties and municipalities shall be designated by the governments of provinces, autonomous regions or municipalities directly under the Central Government.

The departments of fishery administration under the local governments at or above the county level shall be responsible for the administration of aquatic wildlife in their respective areas.

## **Chapter II Protection of Wildlife**

**Article 8** The state shall protect wildlife and the environment for its survival, and shall prohibit the illegal hunting, catching or destruction of wildlife by any unit or individual.

**Article 9** The state shall give special protection to the species of wildlife which are rare or near extinction.

The wildlife under special state protection shall consist of two classes: wildlife under first class protection and wildlife under second class protection. Lists or revised lists of wildlife under special state protection shall be drawn up by the department of wildlife administration under the State Council and announced after being submitted to and approved by the State Council.

The wildlife under special local protection, being different from the wildlife under special state protection, refers to the wildlife specially protected by provinces, autonomous regions or municipalities directly under the Central Government. Lists of wildlife under special local protection shall be drawn up and announced by the governments of provinces, autonomous regions or municipalities directly under the

Central Government and shall be submitted to the State Council for the record.

Lists or revised lists of terrestrial wildlife under state protection, which are beneficial or of important economic or scientific value, shall be drawn up and announced by the department of wildlife administration under the State Council.

**Article 10** The department of wildlife administration under the State Council and governments of provinces, autonomous regions and municipalities directly under the Central Government shall, in the main districts and water areas where wildlife under special state or local protection lives and breeds, designate nature reserves and strengthen the protection and administration of wildlife under special state or local protection and the environment for its survival.

The designation and administration of nature reserves shall be affected in accordance with the relevant provisions of the State Council.

**Article 11** Departments of wildlife administration at various levels shall keep watch on and monitor the impact of the environment on wildlife. If the environmental impact causes harm to wildlife, the departments of wildlife administration shall conduct investigation and deal with the matter jointly with the departments concerned.

**Article 12** If a construction project produces adverse effects on the environment for the survival of wildlife under special state or local protection, the construction unit shall submit a report on the environmental impact. The department of environmental protection shall, in examining and approving the report, seek the opinion of the department of wildlife administration at the same level.

**Article 13** If natural disasters present threats to wildlife under special state or local protection, the local governments shall take timely measures to rescue them.

**Article 14** If the protection of wildlife under special state or local protection causes losses to crops or other losses, the local governments shall make compensation for them. Measures for such compensation shall be formulated by the governments of provinces, autonomous regions and municipalities directly under the Central Government.

### **Chapter III Administration of Wildlife**

**Article 15** The departments of wildlife administration shall regularly carry out surveys of Wildlife resources and keep records of them.

**Article 16** The hunting, catching or killing of wildlife under special state protection shall be prohibited.

Where the catching or fishing for wildlife under first class state protection is necessary for scientific research, domestication and breeding, exhibition or other special purposes, the unit concerned must apply to the department of wildlife administration under the State Council for a special hunting and catching license; where the catching or hunting of wildlife under second class state protection is intended, the unit concerned must apply to the relevant department of wildlife administration under the government of a province, an autonomous region or a municipality directly under

the Central Government for a special hunting and catching license.

**Article 17** The state shall encourage the domestication and breeding of wildlife.

Anyone who intends to domesticate and breed wildlife under special state protection shall obtain a license. Administrative measures for such licenses shall be formulated by the department of wildlife administration under the State Council.

**Article 18** Anyone who intends to hunt or catch wildlife that is not under special state protection must obtain a hunting license and observe the hunting quota assigned.

Anyone who intends to hunt with a gun must obtain a gun license from the public security organ of the county or municipality concerned.

**Article 19** Anyone engaged in the hunting or catching of wildlife shall observe the prescriptions in his special hunting and catching license or his hunting license with respect to the species, quantity, area and time limit.

**Article 20** In nature reserves and areas closed to hunting, and during seasons closed to hunting, the hunting and catching of wildlife and other activities which are harmful to the living and breeding of wildlife shall be prohibited.

The areas and seasons closed to hunting as well as the prohibited hunting gear and methods shall be specified by governments at or above the county level or by the departments of wildlife administration under them.

**Article 21** The hunting or catching of wildlife by the use of military weapons, poison or explosives shall be prohibited.

Measures for the control of the production, sale and use of hunting rifles and bullets shall be formulated by the department of forestry administration under the State Council jointly with the public security department, and shall enter into force after being submitted to and approved by the State Council.

**Article 22** The sale and purchase of wildlife under special state protection or the products thereof shall be prohibited. Where the sale, purchase or utilization of wildlife under first class state protection or the products thereof is necessary for scientific research, domestication and breeding, exhibition or other special purposes, the unit concerned must apply for approval by the department of wildlife administration under the State Council or by a unit authorized by the same department. Where the sale, purchase or utilization of wildlife under second class state protection or the products thereof is necessary, the unit concerned must apply for approval by the department of wildlife administration under the government of the relevant province, autonomous region or municipality directly under the Central Government or by a unit authorized by the same department.

Units and individuals that domesticate and breed wildlife under special state protection may, by presenting their domestication and breeding licenses, sell wildlife under special state protection or the products thereof, in accordance with the relevant regulations, to purchasing units designated by the government.

The administrative authority for industry and commerce shall exercise supervision and control over wildlife or the products thereof that are placed on the market.

**Article 23** The transportation or carrying of wildlife under special state protection or the products thereof out of any county must be approved by the department of wildlife administration under the government of the relevant province, autonomous region or municipality directly under the Central Government, or by a unit authorized by the same department.

**Article 24** The export of wildlife under special state protection or the products thereof, and the import or export of wildlife or the products thereof, whose import or export is restricted by international conventions to which China is a party, must be approved by the department of wildlife administration under the State Council or by the State Council, and an import or export permit must be obtained from the state administrative organ in charge of the import and export of the species which are near extinction. The Customs shall clear the imports or exports after examining the import or export permit.

The export of the species of wildlife involving scientific and technological secrets shall be dealt with in accordance with relevant provisions of the State Council.

**Article 25** The forgery, sale or resale or transfer of special hunting and catching licenses, hunting licenses, domestication and breeding licenses, and import and export permits shall be prohibited.

**Article 26** Where any foreigner intends, in the territory of China, to make surveys of or to film or videotape wildlife under special state protection in the field, he must apply for approval by the department of wildlife administration under the State Council or by a unit authorized by the same department.

The establishment of a hunting area open for foreigners shall be reported to the administrative department of wild animals of the State Council for archival purposes.

**Article 27** Anyone engaged in the utilization of wildlife or the products thereof shall pay a fee for the protection and administration of wildlife resources. The schedule of the fee and the procedure for collecting it shall be formulated by the department of wildlife administration under the State Council jointly with the financial and pricing authorities and shall enter into force after being submitted to and approved by the State Council.

**Article 28** Anyone who has caused losses to crops or other losses while hunting or catching wildlife shall be held responsible for compensation.

**Article 29** The local governments concerned shall take measures to prevent and control the harm caused by wildlife so as to guarantee the safety of human beings and livestock and ensure agricultural and forestry production.

**Article 30** The administrative measures for wildlife under special local protection and for other wildlife that is not under special state protection shall be formulated by

the standing committees of the people's congresses of provinces, autonomous regions and municipalities directly under the Central Government.

#### **Chapter IV Legal Responsibility**

**Article 31** Anyone who illegally catches or kills wildlife under special state protection shall be prosecuted for criminal responsibility in accordance with the supplementary provisions on punishing the crimes of catching or killing the species of wildlife under special state protection which are rare or near extinction.

**Article 32** If anyone, in violation of the provisions of this Law, hunts or catches wildlife in an area or during a season closed to hunting or uses prohibited hunting gear or methods for the purpose, his catch, hunting gear and unlawful income shall be confiscated and he shall be fined by the department of wildlife administration; if the circumstances are serious enough to constitute a crime, he shall be prosecuted for criminal responsibility in accordance with the provisions of **Article 130** of the Criminal Law.

**Article 33** If anyone, in violation of the provisions of this Law, hunts or catches wildlife without a hunting license or in violation of the prescriptions of the hunting license, his catch and unlawful income shall be confiscated and he shall be fined by the department of wildlife administration and, in addition, his hunting gear may be confiscated and his hunting license revoked.

If anyone, in violation of the provisions of this Law, hunts wildlife with a hunting rifle without a license for the rifle, he shall be punished by a public security organ by applying mutatis mutandis the provisions of the Regulations on Administrative Penalties for Public Security.

**Article 34** If anyone, in violation of the provisions of this Law, destroys in nature reserves or areas closed to hunting the main places where wildlife under special state or local protection lives and breeds, he shall be ordered by the department of wildlife administration to stop his destructive acts and restore these places to their original state within a prescribed time limit, and shall be fined.

**Article 35** If anyone, in violation of the provisions of this Law, sells, purchases, transports or carries wildlife under special state or local protection or the products thereof, such wildlife and products and his unlawful income shall be confiscated by the administrative authority for industry and commerce and he may concurrently be fined.

If anyone, in violation of the provisions of this Law, sells or purchases wildlife under special state protection or the products thereof, and if the circumstances are serious enough to constitute a crime of speculation or smuggling, he shall be prosecuted for criminal responsibility according to the relevant provisions of the Criminal Law.

The wildlife or the products thereof thus confiscated shall, in accordance with the relevant provisions, be disposed of by the relevant department of wildlife administration or by a unit authorized by the same department.

**Article 36** If anyone illegally imports or exports wildlife or the products thereof, he shall be punished by the Customs according to the Customs Law; if the circumstances are serious enough to constitute a crime, he shall be prosecuted for criminal responsibility in accordance with the provisions of the Criminal Law on the crimes of smuggling.

**Article 37** If anyone forges, sells or resells or transfers a special hunting and catching license, a hunting license, a domestication and breeding license, or an import or export permit, his license or permit shall be revoked and his unlawful income shall be confiscated and he may concurrently be fined by the relevant department of wildlife administration or the administrative authority for industry and commerce.

If anyone who forges or sells or resells a special hunting and catching license or an import or export permit, and if the circumstances are serious enough to constitute a crime, he shall be prosecuted for criminal responsibility by applying *mutatis mutandis* the provisions of **Article 167** of the Criminal Law.

**Article 38** Any staff member of a department of wildlife administration who neglects his duty, abuses his power or engages in malpractices for personal gains shall be subject to administrative sanctions by the department to which he belongs or by the competent authority at a higher level; if the circumstances are serious enough to constitute a crime, he shall be prosecuted for criminal responsibility according to law.

**Article 39** Any party who is dissatisfied with the decision on an administrative sanction may, within 15 days of receiving the notification on the sanction, make a request for reconsideration to the authority at the level next higher to the one that made the decision on the sanction; if he is dissatisfied with the decision on reconsideration made by the authority at the next higher level, he may, within 15 days of receiving the notification on the decision on reconsideration, institute legal proceedings in the court. The party may also directly institute legal proceedings in the court within 15 days of receiving the notification on the sanction. If the party neither makes a request for reconsideration, nor institutes legal proceedings in the court, nor complies with the decision on the sanction, the authority that made the decision on the sanction shall request the court to effect a compulsory execution of the decision.

If the party is dissatisfied with a customs penalty or a penalty for violation of public security, the matter shall be dealt with in accordance with the provisions of the Customs Law or the Regulations on Administrative Penalties for Public Security.

## **Chapter V Supplementary Provisions**

**Article 40** If any international treaty concerning the protection of wildlife, concluded or acceded to by the People's Republic of China, contains provisions differing from those of this Law, the provisions of the international treaty shall apply, unless the provisions are ones on which the People's Republic of China has made reservations.

**Article 41** The department of wildlife administration under the State Council shall,

in accordance with this Law, formulate regulations for its implementation which shall go into effect after being submitted to and approved by the State Council.

The standing committees of the people's congresses of provinces, autonomous regions and municipalities directly under the Central Government may, in accordance with this Law, formulate measures for its implementation.

**Article 42** This Law shall come into force as of March 1, 1989.

## **1.6 Law of the People's Republic of China on Environmental Protection**

(Adopted at the 11th session of the Standing Committee of the Seventh National People's Congress on December 26, 1989, and revised at the 8th session of the Standing Committee of the Twelfth National People's Congress on April 24, 2014)

### **Chapter I General Provisions**

**Article 1** This Law is developed for the purposes of protecting and improving environment, preventing and controlling pollution and other public nuisances, safeguarding public health, promoting ecological civilization, and enhancing sustainable economic and social development.

**Article 2** For the purposes of this Law, “environment” means the entirety of all natural elements and artificially transformed natural elements that affect the survival and development of human beings, including but not limited to air, water, seas, land, minerals, forests, grasslands, wetland, wildlife, natural and cultural relics, nature reserves, scenic spots, historical sites, and urban and rural areas.

**Article 3** This Law shall apply to the territory of the People's Republic of China, and other sea areas under the jurisdiction of the People's Republic of China.

**Article 4** Protecting environment is a fundamental national policy of the state.

The state shall adopt economic and technological policies and measures conducive to economically and cyclically utilizing resources, protecting and improving environment and enhancing the harmony between mankind and nature to coordinate economic and social development with environmental protection.

**Article 5** Environmental protection shall adhere to the principles of giving priority to protection, focusing on prevention, conducting comprehensive treatment, engaging the general public, and enforcing accountability for damage.

**Article 6** All entities and individuals shall have the obligation to protect environment.

The local people's governments at all levels shall be responsible for the

environmental quality within their respective administrative regions.

Enterprises, public institutions, and other businesses shall prevent and reduce environmental pollution and ecological disruption, and assume liabilities for damage caused by them.

Citizens shall raise their awareness of environmental protection, adopt low-carbon and economical lifestyles, and conscientiously fulfill their obligation to protect environment.

**Article 7** The state shall support scientific and technological research, development, and application for environmental protection, encourage the development of environmental protection industries, promote the information technology development for environmental protection, and increase the scientific and technological level of environmental protection.

**Article 8** The people's governments at all levels shall provide more financial input in the protection and improvement of environment and the prevention and control of pollution and other public nuisances, and increase the utilization efficiency of financial funds.

**Article 9** The people's governments at all levels shall strengthen the publicity and dissemination of information on environmental protection, encourage basic-level self-governing organizations of the masses, social organizations, and environmental protection volunteers to conduct publicity of environmental protection laws and regulations and environmental protection knowledge, and create a favorable atmosphere for environmental protection.

Education administrative departments and schools shall include environmental protection knowledge in school education to cultivate students' awareness of environmental protection.

News media shall publicize environmental protection laws and regulations and environmental protection knowledge, and oversee environment-related illegal acts.

**Article 10** The environmental protection administrative department of the State Council shall generally supervise and administer the national environmental protection work, while the environmental protection administrative departments of the local people's governments at and above the county level shall generally supervise and administer the environmental protection work within their respective administrative regions.

The relevant departments of the people's governments at and above the county level and the environmental protection departments of the armed forces shall supervise and administer resource protection, pollution prevention and control, and other environmental protection work in accordance with the provisions of relevant laws.

**Article 11** The people's governments shall reward outstanding entities and individuals in protecting and improving environment.



**Article 12** Environment Day is celebrated on June 5 every year.

## **Chapter II Supervision and Administration**

**Article 13** The people's governments at and above the county level shall include the environmental protection work in their plans on national economic and social development.

The environmental protection administrative department of the State Council shall, in conjunction with the relevant departments, develop a plan on national environmental protection in accordance with the plan on national economic and social development, and submit it to the State Council for approval, publication, and implementation.

The environmental protection administrative departments of the local people's governments at and above the county level shall, in conjunction with the relevant departments, develop the plans on environmental protection for their respective administrative regions in accordance with the requirements of the plan on national environmental protection, and submit them to the people's governments at the same level for approval, publication, and implementation.

A plan on environmental protection shall include the objectives and tasks of and safeguards for ecological protection and pollution prevention and control, and be connected with the major function zoning plan, comprehensive plan on land use, and urban and rural development plan, among others.

**Article 14** In organizing the development of economic and technological policies, the relevant departments of the State Council and the people's governments of all provinces, autonomous regions, and municipalities directly under the Central Government shall frilly consider the environmental impact thereof, and hear the opinions of the relevant parties and experts.

**Article 15** The environmental protection administrative department of the State Council shall develop the national environmental quality standards.

For matters not included in the national environmental quality standards, the people's governments of provinces, autonomous regions, and municipalities directly under the Central Government may develop local environmental quality standards; and for matters included in the national environmental quality standards, they may develop local environmental quality standards higher than the national standards.

Local environmental quality standards shall be submitted to the environmental protection administrative department of the State Council for recordation.

The state shall encourage research on environmental criteria.

**Article 16** The environmental protection administrative department of the State Council shall develop the national pollutant discharge standards in accordance with the national environmental quality standards and the national economic and technological conditions.

For matters not included in the national pollutant discharge standards, the people's governments of provinces, autonomous regions, and municipalities directly under the Central Government may develop local pollutant discharge standards; and for matters included in the national pollutant discharge standards, they may develop local pollutant discharge standards higher than the national standards. Local pollutant discharge standards shall be submitted to the environmental protection administrative department of the State Council for recordation.

**Article 17** The state shall establish and improve environmental monitoring rules. The environmental protection administrative department of the State Council shall develop monitoring norms, organize a monitoring network in conjunction with the relevant departments, develop a general plan on the distribution of national environmental quality monitoring stations (points), establish a monitoring data sharing mechanism, and strengthen the administration of environmental monitoring.

The distribution of various types of environmental quality monitoring stations (points) for the relevant industries or specialties shall comply with the requirements of laws and regulations and the monitoring norms.

Monitoring institutions shall use monitoring equipment up to the national standards, and comply with the monitoring norms. Monitoring institutions and the persons in charge thereof shall be responsible for the truth and accuracy of monitoring data.

**Article 18** The people's at and above the provincial level shall organize the relevant governments departments or commission specialized institutions to survey and assess the environmental condition, and establish an environmental and resource carrying capacity monitoring and early warning mechanism

**Article 19** An environmental impact assessment shall be conducted as legally required in the preparation of a relevant development and utilization plan or the construction of a project impacting the environment.

A development and utilization plan that has not undergone environmental impact assessment as legally required may not be implemented. The construction of a construction project that has not undergone environmental impact assessment as legally required may not be commenced.

**Article 20** The state shall establish a coordination mechanism across administrative regions for the joint prevention and control of environmental pollution and ecological disruption in key regions and valley areas, and apply a uniform plan, uniform standards, uniform monitoring, and uniform prevention and control measures.

The prevention and control of environmental pollution and ecological disruption across administrative regions other than that in the preceding paragraph shall be coordinated by the people's governments at higher levels, or resolved through consultations by the relevant local people's governments.

**Article 21** The state shall adopt policies and measures in finance, taxation, price,

and government procurement, among others, to encourage and support the development of environmental protection industries such as technological equipment for environmental protection, comprehensive utilization of resources, and environmental services.

**Article 22** The people's governments shall adopt policies and measures in finance, taxation, price, and government procurement, among others, to encourage and support the further pollutant discharge reduction by enterprises, public institutions, and other businesses after meeting the statutory requirements for the discharge of pollutants.

**Article 23** The people's governments shall support the production changes, relocation, or closedown of enterprises, public institutions, and other businesses for the purpose of improving environment in accordance with the relevant provisions.

**Article 24** The environmental protection administrative departments of the people's governments at and above the county level, the environmental supervision institutions authorized by them, and other departments with environmental protection supervision and administration functions shall have the authority to conduct the on-site inspection of enterprises, public institutions, and other businesses that discharge pollutants. Those under inspection shall honestly provide relevant information and necessary materials. The departments or institutions conducting such inspection and the employees thereof shall keep the trade secrets of those under inspection.

**Article 25** Where the discharge of pollutants by enterprises, public institutions, and other businesses in violation of laws and regulations has caused or may cause any serious pollution, the environmental protection administrative departments of the people's governments at and above the county level and other departments with environmental protection supervision and administration functions may seize or impound the facilities or equipment causing the discharge of pollutants.

**Article 26** The state shall apply an objectives responsibility system and an evaluation and review system to environmental protection. The people's governments at and above the county level shall include the achievement of environmental protection objectives in the evaluation of their respective departments with environmental protection supervision and administration functions and the persons in charge thereof as well as the people's governments at lower levels and the persons in charge thereof, as an important basis for the evaluation and review of them. The evaluation results shall be made available to the public.

**Article 27** The people's governments at and above the county level shall report annually the environmental condition and the achievement of environmental protection objectives to the people's congresses at the same level or the standing committees thereof, and report in a timely manner the major environmental events to the standing committees of the people's congresses at the same level, to receive supervision according to the law.

### **Chapter III Environmental Protection and Improvement**

**Article 28** The local people's governments at all levels shall, according to environmental protection objectives and pollution control tasks, adopt effective measures to improve environmental quality. The relevant local people's governments in key regions and valley areas that fail to reach the national environmental quality standards shall develop plans on reaching such standards during a specified period, and adopt measures to reach such standards as scheduled.

**Article 29** The state shall draw ecological red lines in key ecological function zones, ecological sensitive areas and fragile areas, and other areas to apply strict protection.

The people's governments at all levels shall adopt measures to protect and prohibit any damage to the regions with various types of typical natural ecosystems, regions with a natural distribution of rare or endangered wild animals or plants, regions where major sources of water are conserved, natural relics such as geological structures of great scientific and cultural values, famous regions where karst caves or fossil deposits are distributed, glaciers, volcanoes, and hot springs, cultural relics, and ancient and precious trees.

**Article 30** In the development and utilization of natural resources, the development shall be rational to protect biological diversity and ecological safety, and the relevant ecological protection and rehabilitation management plans shall be developed and implemented according to the law.

In the introduction of alien species and the research, development, and utilization of biotechnologies, measures shall be adopted to prevent any damage to biodiversity.

**Article 31** The state shall establish and improve an ecological compensation mechanism.

The state shall increase financial transfer payments to ecological protection areas. The relevant local people's governments shall oversee the use of ecological compensation funds to ensure that such funds are used for ecological compensation purposes.

The state shall guide the people's governments of ecologically benefited areas and ecological protection areas in making ecological compensation through consultations or under the market rules.

**Article 32** The state shall strengthen the protection of air, water, and soil, among others, and establish and improve the corresponding survey, monitoring, assessment, and remediation rules.

**Article 33** The people's governments at all levels shall strengthen the protection of agricultural environment, promote the application of new technologies for protecting agricultural environment, strengthen the monitoring and early warning of agricultural pollution sources, and coordinate the relevant departments in adopting measures to prevent and control soil pollution, the desertification, alkalization, impoverishment and rocky desertification of land, land subsidence, vegetation deterioration, water loss and

soil erosion, eutrophication of water bodies, exhaustion of water sources, extinction of species, and other ecological disturbances and promote the comprehensive prevention and control of plant diseases and insect pests.

The people's governments at the county and village levels shall improve the public service level for environmental protection in rural areas, and promote the comprehensive control and management of environment in rural.

**Article 34** The State Council and the local people's governments at all levels in coastal areas shall strengthen the protection of marine environment. The discharge of pollutants and the dumping of wastes into the sea or the construction of coastal or marine engineering projects shall comply with laws and regulations and the relevant standards, and pollution and damage to the marine environment shall be prevented or reduced.

**Article 35** In urban and rural construction, the characteristics of the local natural environment shall be considered, vegetation, waters and natural landscapes shall be protected, and the construction and management of gardens, green land, and scenic spots and historic sites in urban areas shall be strengthened.

**Article 36** The state shall encourage and direct citizens, legal persons, and other organizations to use products and recycled products conducive to protecting environment to reduce wastes.

Government agencies and other organizations using fiscal funds shall, when purchasing and using products, equipment and facilities, give priority to those that are energy-saving, water-saving, material-saving or otherwise conducive to protecting environment.

**Article 37** The local people's governments at all levels shall take measures to organize the sorting and recycling of domestic wastes.

**Article 38** Citizens shall abide by environmental protection laws and regulations, cooperate in the implementation of environmental protection measures, and drop domestic wastes in waste separation bins as required to reduce damage to environment in daily lives.

**Article 39** The state shall establish and improve the environment and health monitoring, survey and risk assessment rules, encourage and organize research on the impact of environmental quality on public health, and adopt measures to prevent and control diseases related to environmental pollution.

#### Chapter IV Prevention and Control of Pollution and Other Public Nuisances

**Article 40** The state shall promote cleaner production and resource recycling.

**Article 41** The pollution prevention and control installations included in a construction project shall be designed, constructed and put to use simultaneously with the body of the construction project. Such installations shall satisfy the requirements of the approved environmental impact assessment document, and may not be dismantled

or left unused without permission.

**Article 42** Enterprises, public institutions, and other businesses that discharge pollutants shall adopt

measures to prevent and control pollution and damage to environment caused by waste gas, waste water, waste residue, medical wastes, dust, malodorous gases, radioactive substances, noise, vibration, optical radiation, electromagnetic radiation, and other substances generated in their production, construction, and other activities.

Enterprises and public institutions that discharge pollutants shall establish accountability rules for environmental protection to specify the duties and responsibilities of persons in charge of them and other relevant persons.

Pollutant discharging entities under intensified supervision shall install and use monitoring equipment in accordance with the relevant provisions of the state and the monitoring norms, ensure the normal functioning of monitoring equipment, and preserve the original monitoring records.

It shall be prohibited to illegally discharge pollutants by installing underground pipelines, using seepage wells or pits, conducting perfusion, or altering or forging monitoring data, through the abnormal operation of pollution prevention and control installations, or by other means to avoid supervision.

**Article 43** Enterprises, public institutions, and other businesses that discharge pollutants shall pay pollutant discharge fees in accordance with the relevant provisions of the state. Pollutant discharge fees shall be all used for the prevention and control of environmental pollution. No entity or individual may withhold such funds or use such funds for similar or other purposes.

No pollutant discharge fees shall be levied if environmental pollution tax has been levied according to the law.

**Article 44** The state shall apply a total discharge volume control system to key pollutants. The State Council shall assign the total discharge volume control indicators of key pollutants to the people's governments of provinces, autonomous regions, and municipalities directly under the Central

Government for further breakdown and implementation. When implementing the national and local pollutant discharge standards, enterprises and public institutions shall comply with the total discharge volume control indicators of key pollutants further assigned to them.

For areas which exceed the state's total discharge volume control indicators of key pollutants or fail to achieve the environmental quality objectives determined by the state, the environmental protection administrative departments of the people's governments at and above the provincial level shall suspend the procedures for approving the environmental impact assessment documents on construction projects in such areas that will increase the total discharge volume of key pollutants.

**Article 45** The state shall, according to the law, apply a licensing system to the discharge of pollutants. Enterprises, public institutions, and other businesses subject to pollutant discharge licensing management shall discharge pollutants according to the requirements of their respective pollutant discharge licenses; and those without a pollutant discharge license may not discharge pollutants.

**Article 46** The state shall apply an elimination system to techniques, equipment, and products that cause serious environmental pollution. No entity or individual may produce, sell, transfer, or use techniques, equipment, or products that cause serious environmental pollution.

It shall be prohibited to introduce any technology, equipment, material, or product that fails to comply with the environmental protection provisions of China.

**Article 47** The people's governments at all levels, the relevant departments thereof, enterprises, and public institutions shall effectively conduct the risk control, preparedness, response, rehabilitation, and other work on environmental emergencies, in accordance with the Emergency Response Law of the People's Republic of China.

The people's governments at and above the county level shall establish public monitoring and early warning mechanisms for environmental pollution, organize the development of early warning plans, and, when any environmental pollution may endanger public health and environmental safety, release early warning information and activate emergency response measures in a timely manner according to the law.

Enterprises and public institutions shall prepare emergency response plans for environmental emergencies in accordance with the relevant provisions of the state, and submit them to the environmental protection administrative departments and other relevant departments for recordation.

Where any environment emergency occurs or may occur, an enterprise or public institution shall immediately take response measures, notify in a timely manner the entities and citizens to which any harm may be caused, and report to the environmental protection administrative department and other relevant departments.

After the end of the emergency response to an environmental emergency, the relevant people's government shall immediately organize an assessment on the environmental impact of and the losses caused by the event, and disclose the assessment results to the public in a timely manner.

**Article 48** The production, storage, transportation, sale, use, and disposal of chemicals and materials containing radioactive substances must comply with the relevant provisions of the state to prevent environmental pollution.

**Article 49** The people's governments at all levels and the agricultural and other relevant departments and institutions thereof shall guide agricultural businesses in plant and animal farming in a scientific manner, apply pesticides, chemical fertilizers and other agricultural inputs in a rational and scientific manner, and dispose of agricultural films, agricultural straws and other agricultural wastes in a scientific manner to prevent

agricultural non-point source pollution.

It shall be prohibited to apply any solid wastes or waste water in noncompliance with agricultural standards or environmental protection standards to farmland. In the application of pesticides, chemical fertilizers, and other agricultural inputs or irrigation, measures shall be taken to prevent environmental pollution caused by heavy metals and other toxic and harmful substances.

The site selection, construction, and management of farms, breeding areas, and designated slaughter enterprises of livestock and poultry shall comply with the provisions of relevant laws and regulations.

Entities and individuals engaging in livestock and poultry breeding or slaughter shall take measures to dispose of livestock and poultry manure and corpses, sewage, and other wastes in a scientific manner to prevent environmental pollution.

The people's governments at the county level shall be responsible for organizing the disposal of domestic wastes in rural areas.

**Article 50** The people's governments at all levels shall arrange funds in their fiscal budgets for supporting the protection of drinking water sources, the treatment of domestic sewage and other wastes, the prevention and control of pollution from livestock and poultry breeding and slaughter, the prevention and control of soil pollution, the control of pollution from industrial and mining activities, and other environmental protection work in rural areas.

**Article 51** The people's governments at all levels shall make overall plans on the construction of sewage treatment facilities and related pipeline networks, environmental sanitation facilities for the collection, transportation, and disposal, among others, of solid wastes, facilities and sites for the centralized disposal of dangerous wastes, and other public facilities for environmental protection in urban and rural areas, and ensure their normal functioning.

**Article 52** The state shall encourage the purchase of environmental pollution liability insurance.

## **Chapter V Information Disclosure and Public Engagement**

**Article 53** Citizens, legal persons, and other organizations shall, according to the law, have the rights to obtain environmental information and participate in and oversee environmental protection.

The environmental protection administrative departments and other departments with environmental protection supervision and administration functions of the people's governments at all levels shall, according to the law, disclose environmental information, and improve the procedures for public engagement, to facilitate the participation in and oversight of environmental protection by citizens, legal persons, and other organizations.

**Article 54** The environmental protection administrative department of the State



Council shall release information on environmental quality and the monitoring of key pollution sources and other significant environmental information of the state in a unified way. The environmental protection administrative departments of the people's governments at and above the provincial level shall periodically release reports on the state of environment.

The environmental protection administrative departments and other departments with environmental protection supervision and administration functions of the people's governments at and above the county level shall, according to the law, disclose information on environmental quality, environmental monitoring, environmental emergencies, environmental administrative licensing, environmental administrative punishment, and collection and use of pollutant discharge fees, among others.

The environmental protection administrative departments and other departments with environmental protection supervision and administration functions of the local people's governments at and above the county level shall record the environmental violations of law by enterprises, public institutions, and other businesses in their social integrity files, and disclose the names of violators to the public in a timely manner.

**Article 55** Pollutant discharging entities under intensified supervision shall honestly disclose to the

public the names of their major pollutants, the discharge methods, the concentration and total volume of pollutants discharged, any discharge beyond the approved quota, and the construction and operation of pollution prevention and control installations to receive supervision from the general public.

**Article 56** For a construction project for which an environmental impact report is required by the law, when preparing such a report, the construction employer shall provide an explanation to the public that may be affected, and fully solicit their opinions.

After receiving the environmental impact report for a construction project, the department approving the environmental impact assessment documents for construction projects shall disclose the full text of the report, except the part involving any state secret or trade secret; and if it discovers that public opinions have not been fully solicited regarding the project, the department shall order the construction employer to solicit public opinions.

**Article 57** Citizens, legal persons, and other organizations that discover any environmental pollution or ecological damage caused by any entity or individual shall have the right to report to environmental protection administrative departments or other departments with environmental protection supervision and administration functions.

Citizens, legal persons, and other organizations that discover any failure of the local people's governments at any level or the environmental protection administrative departments or other departments with environmental protection supervision and administration functions of the people's governments at and above the county level to legally perform their duties shall have the right to report to the authorities at higher

levels or the supervisory authorities.

The authorities receiving such reports shall keep confidential the relevant information on whistleblowers, and protect the lawful rights and interests of whistleblowers.

**Article 58** For an act polluting environment or causing ecological damage in violation of public interest, a social organization which satisfies the following conditions may institute an action in a people's court:

(1) It has been legally registered with the civil affairs department of the people's government at or above the level of a districted city.

(2) It has specially engaged in environmental protection for the public good for five consecutive years or more without any recorded violation of law.

A people's court shall, according to the law, accept an action instituted by a social organization that satisfies the provision of the preceding paragraph.

A social organization may not seek any economic benefit from an action instituted by it.

## **Chapter VI Legal Liability**

**Article 59** Where any enterprise, public institution, or other business is fined and ordered to make correction for illegally discharging pollutants but refuses to make correction, the administrative agency legally making the punishment decision may impose continuous fines on it in the amount of the original fine for each day from the next day after it is ordered to make correction.

The fine punishment as mentioned in the preceding paragraph shall be determined on the basis of factors such as the operation costs of pollution prevention and control installations, the direct losses caused by the illegal act and the illegal income as provided for by the relevant laws and regulations.

Based on the actual needs for environmental protection, the types of illegal acts subject to continuous daily fines as mentioned in the first paragraph hereof may be increased in local regulations.

**Article 60** Where any enterprise, public institution, or other business discharges pollutants beyond the pollutant discharge standards or the total discharge volume control indicators of key pollutants, the environmental protection administrative department of the local people's government at or above the county level may order it to adopt measures such as restricting production or suspending business for rectification; and if the circumstances are serious, order it to terminate business or close down with the approval of the people's government with such approval power.

**Article 61** Where any construction employer fails to submit the environmental impact assessment documents for its construction project according to the law or commences construction without permission before the environmental impact

assessment documents are approved, the department with environmental protection supervision and administration functions shall order it to cease construction,

and impose a fine on it, and may order restoration to the original state.

**Article 62** Where, in violation of this Law, any pollutant discharging entity under intensified supervision fails to disclose or honestly disclose environmental information, the environmental protection administrative department of the local people's government at or above the county level shall order it to disclose the information, impose a fine on it, and issue a public announcement of the punishment.

**Article 63** Where any enterprise, public institution, or other business commits any of the following acts, if no crime is constituted, in addition to imposing punishment in accordance with the provisions of relevant laws and regulations, the environmental protection administrative department or any other relevant department of the people's government at or above the county level shall transfer the case to the public security authority, which shall detain the directly liable person in charge and other directly liable persons for not less than 10 days but not more than 15 days; or, if the circumstances are relatively minor, for not less than 5 days but not more than 10 days:

(1) It refuses to comply with an order requiring it to cease construction of a construction project which has not undergone environmental impact assessment as legally required.

(2) It refuses to comply with an order requiring it to cease discharge of pollutants for its illegal discharge of pollutants without a pollutant discharge license.

(3) It illegally discharges pollutants by installing underground pipelines, using seepage wells or pits, conducting perfusion, or altering or forging monitoring data, through the abnormal operation of pollution prevention and control installations, or by other means to avoid supervision.

(4) It refuses to comply with an order requiring it to make correction for its production or use of pesticides which have been expressly prohibited by the state from production or use.

**Article 64** Where any damage is caused by environmental pollution or ecological disruption, the tortfeasor shall assume tort liability in accordance with the relevant provisions of the Tort Law of the People's Republic of China.

**Article 65** Where any environmental impact assessment institution, environmental monitoring institution, or institution engaging in the maintenance or operation of environmental monitoring equipment and pollution prevention and control installations makes falsification in the provision of relevant environmental services and is liable for the environmental pollution or ecological disruption caused, it shall assume joint and several liability with other parties liable for the environmental pollution or ecological disruption, in addition to punishment in accordance with the provisions of relevant laws and regulations.

**Article 66** The time limitation for instituting an environmental action for damages shall be three years, starting from the time when a party knows or should have known the harm caused to the party.

**Article 67** The people's governments at higher levels and the environmental protection administrative departments thereof shall strengthen supervision over the environmental protection work of the people's governments at lower levels and the relevant departments thereof, and, if they discover that any employees have committed any illegal acts for which disciplinary actions shall be taken according to the law, recommend disciplinary actions to the appointment and removal authorities or supervisory authorities for such employees.

Where the relevant environmental protection administrative department fails to impose administrative punishment as otherwise legally required, the environmental protection administrative department of the people's government at a higher level may directly make a decision to impose administrative punishment.

**Article 68** Where a local people's government at any level or the environmental protection administrative department or any other department with environmental protection supervision and administration functions of a people's government at or above the county level commits any of the following acts, the directly liable person in charge and other directly liable persons shall be subject to a demerit, a major demerit, or demotion; and if the consequences are serious, they shall be removed from office or expelled, and the primary person in charge thereof shall resign to assume the responsibility for the act:

(1) Granting any administrative license despite that the conditions for granting the administrative license are not satisfied.

(2) Harboring any environment-related illegal acts.

(3) Failing to make a decision to order cessation of business or closedown as otherwise legally required.

(4) Failing to investigate any discharge of pollutants beyond the prescribed standards, discharge of

pollutants by means to avoid supervision, environmental accident, or ecological disruption caused by a failure to implement ecological protection measures and impose punishment in a timely manner, after discovering or receiving a report on it.

(5) Seizing or impounding any facility or equipment of any enterprise, public institution, or other business in violation of this Law.

(6) Altering or forging monitoring data or instigating others to do so.

(7) Failing to disclose environmental information as otherwise legally required.

(8) Withholding or using for similar or other purposes the pollutant discharge fees collected.

(9) Other illegal acts as specified by laws and regulations.

**Article 69** Whoever is suspected of a crime for violating this Law shall be subject to criminal liability according to the law.

#### **Chapter VII Supplementary Provisions**

**Article 70** This Law shall come into force on January 1, 2015.

## **1.7 Highway Law of the People's Republic of China (Excerpt)**

(Adopted at the 26th Meeting of the Standing Committee of the Eight National People's Congress and implementation as of January 1, 1998; Revised at the 11th session of the Standing Committee of the 10<sup>th</sup> National People's Congress of the People's Republic of China on August 28, 2004.)

**Article 30** Design and work of highway construction should be done in conformance with requirements of the protection of environment, historical relics and sites and the prevention of water loss and soil erosion.

## **1.8 Regulations of the People's Republic of China on Nature Reserves (excerpts)**

(Adopted at the 24th Executive Meeting of the State Council on September 2, 1994, and promulgated by Decree No.167 of the State Council of the People's Republic of China on October 9, 1994)

**Article 22** The major functions of administrative agencies of nature reserves shall be as follows:

(1) to implement relevant laws, regulations, guidelines and policies formulated by the state on nature conservation;

(2) to develop various management systems so as to exert unified management on the nature reserves;

(3) to conduct survey on the natural resources and set up necessary records accordingly and organize environmental monitoring in order to protect the natural environment and resources in the nature reserves;

(4) to organize or assist relevant departments to make scientific researches on the nature reserves;

(5) to carry out education and public programs on nature conservation;

(6) to organize activities such as visiting and sightseeing tour in the nature reserves on the precondition that the natural environment and resources of the nature reserve shall not be affected by such activities.

**Article 27** Nobody shall be allowed to enter the core zones of nature reserves. Where scientific observations and surveys thereto are necessary for scientific research, the individuals concerned shall submit the applications and activity plans to the administrative agencies of the nature reserves in advance, and shall be approved by the competent administrative departments of nature reserves in the people's governments at or above the provincial level. Access to the core zones of national nature reserves shall be approved by the competent administrative departments of nature reserves under the State Council.

For residents living in the core zones of the nature reserves who need to move out, the local people's governments shall take appropriate measures to resettle them.

**Article 28** Tourism, production and trading activities are prohibited in the buffer zones of nature reserves. In case the non-destructive activities, such as scientific research, teaching practice and specimen collection, need to be conducted for teaching or scientific research purposes in buffer zones of nature reserves, applications and activity plans shall be submitted to the administrative agencies of the nature reserves in advance, and be approved by the said agencies.

All organizations and individuals who participate in such activities described in the preceding paragraph shall submit a copy of the activity outcomes to the administrative agencies of the nature reserves.

**Article 29** As for the visiting and sightseeing tourist activities in the experimental zones of national nature reserves, the administrative agencies of the nature reserves shall submit a proposal. After the proposal is reviewed by the competent administrative department of nature reserves of the people's government of the province, autonomous region or the municipality directly under the central government, the proposal shall be submitted to the competent administrative department of nature reserves under the State Council for final approval. As for the visiting and sightseeing activities in the experimental zones of local nature reserves, the administrative agency of the nature reserve shall draft a proposal and submit it to the competent administrative department of the nature reserve of the people's government of the province, autonomous region or the municipality directly under the central government for final approval.

Visiting and sightseeing activities in nature reserves shall be conducted according to the proposal approved, and the management of such activities shall be strengthened. All organizations and individuals who enter the nature reserves for visiting or sightseeing shall be subject to the management of the administrative agencies of nature reserves.

The visiting and sightseeing activities that are not aligned with the protection

guidelines of nature reserves shall be prohibited.

**Article 32** No production facilities shall be built in the core and buffer zones of nature reserves. It is forbidden to build production facilities that may cause environmental pollution or damage the natural resources or landscapes in the experimental zones. For other projects to be built in these zones, discharge of pollutants cannot exceed the relevant standards prescribed by national or local governments. If the discharge of pollutants by the facilities that have been built in the experimental zones of nature reserves has exceeded the national or local discharge standards, such pollutants shall be controlled or eliminated within a prescribed period of time. Remedial measures shall be adopted for the damage caused.

## 1.9 Regulations on Scenic and Historic Areas (excerpts)

(Promulgated as Decree of the State Council No. 474 on September 19, 2006, and revised in accordance with the *Decision of the State Council on Amending Some Administrative Regulations* [Decree of the State Council No.666] on February 6, 2016)

**Article 13** The master plan for a scenic and historic area shall take into account the requirements of maintaining harmony between human beings and nature, balancing the development among different regions and promoting comprehensive social and economic progress. The principle of putting conservation first and development second shall be followed, highlighting the natural features, cultural significance and local characteristics of the scenic and historic resources.

**Article 24** The landscape and natural environment in the scenic and historic areas shall be strictly protected, based on the principle of sustainable development. They shall not be damaged or arbitrarily changed.

Scenic and historic area administrative agencies shall establish and improve the management system of protecting scenic and historic resources.

The residents and tourists in the scenic and historic areas shall protect the scenery, water bodies, forests, grass and vegetation, wild animals and various facilities in the areas.

**Article 26** The following activities are forbidden in the scenic and historic areas:

(1) mountain excavation, quarrying, mining, reclamation of wastelands, grave building, erection of stone monuments and other activities that may damage the landscapes, vegetation and topography;

(2) construction of facilities used to store explosive, flammable, radioactive, toxic,

and corrosive goods;

(3) carving or scribbling in the scenic spots or facilities;

(4) littering.

**Article 32** The administrative agencies of scenic and historic areas shall, according to the characteristics of scenic and historic areas, protect national and folk traditional cultures, carry out healthy and beneficial tourism and cultural and recreational activities, and disseminate historical culture and scientific knowledge.

## **1.10 Regulations of the People's Republic of China on the Protection of Terrestrial Wild Animals (excerpts)**

(Approved by the State Council on February 12, 1992. Promulgated by the Ministry of Forestry on March 1, 1992. Revised according to the Decision of the State Council on Abolishing and Amending Some Administrative Regulations of January 8, 2011)

**Article 6** Local people's governments at or above the country level shall develop public education for the protection of wildlife, and may fix and appropriate time as the "Month for Protection of Wildlife" or the "Bird-loving Week," etc., in order to enhance the public consciousness of the protection of wildlife.

**Article 7** The competent department of forestry administration under the State Council and the competent departments of forestry administration under the people's governments of the relevant provinces, autonomous regions and municipalities directly under the Central Government shall regularly carry out surveys of wild animal resources and keep records of them so as to provide the basis for the planning of the protection and development of wildlife resources and the preparation of the list or revised list of wild animal species under special protection by the State or local authorities.

Surveys on wild animal resources shall be conducted once every 10 years, with the census proposal being approved by the competent forestry administrative department under the State Council or the competent forestry administrative departments under the people's governments of provinces, autonomous regions and municipalities directly under the central government.

**Article 8** The competent departments of wildlife administration of the people's governments at or above the county level shall bring together and coordinate all possible social actors and adopt biological engineering and technical engineering measures to maintain and improve the living environment of wildlife and to protect and



develop wild animal resources.

Any damage to the living and breeding areas or the living conditions of wild animals under special protection by the State or local authorities by any organization or individual shall be prohibited.

**Article 10** All organizations or individuals shall have an obligation to take precautionary measures against any potential danger threatening wild animals under special protection by the State or local authorities. If the protection of wildlife under special protection by the State or local authorities causes losses, compensation may be claimed to the department of wildlife administration under the local people's government. If after investigation, it has been proved that the loss has actually happened and the compensation is necessary, such compensation shall be made by the local people's government in accordance with the relevant provisions of the people's government of the relevant province, autonomous region or municipality directly under the Central Government.

## **1.11 Regulations of the People's Republic of China on the Protection of Aquatic Wild Animals (excerpts)**

(Approved by the State Council on September 17, 1993 and issued by the Decree No. 1 of the Ministry of Agriculture on October 5, 1993; revised in accordance with the Decision of the State Council on Abolishing and Amending Some Administrative Regulations on January 8, 2011 for the first time and revised in accordance with the Decision of the State Council on Amending Some Administrative Regulations" on December 7, 2013 for the second time)

**Article 6** Fishery administrative departments under the State Council and fishery administrative departments under people's governments of all provinces, autonomous regions, and municipalities directly under the Central Government shall regularly organize surveys of aquatic wild animal resources and create files of such resources, to provide basis for the formulation of aquatic wild animal resources protection and development plans, and for the development of and adjustment to the lists of aquatic wild animals under State and local priority protection.

**Article 7** Fishery administrative departments shall organize various social actors, take effective measures, maintain and improve the living environment of aquatic wild animals, and protect and propagate aquatic wild animal resources. No organization or individual shall be allowed to damage the water bodies, places, and living conditions where aquatic wild animals under the State key protection and local key protection live and breed.

**Article 9** Any organization or individual that finds any aquatic wild animal that is wounded, gets stranded, or accidentally enters the harbor or the branch of a river and thus land itself in difficulty, shall report the local fishery administrative department or their subordinate fishery supervision and administration institution in a timely manner, and the said department or institution shall take emergency rescue measures; and may require a nearby entity which is capable of rendering rescue to take emergency rescue measures and report to the fishery administrative department. Aquatic wild animals that have died shall be appropriately handled by fishery administrative departments. Aquatic wild animals that have been accidentally captured shall be released immediately and unconditionally.

**Article 10** Those who suffer losses resulting from protection of aquatic wild animals under State priority protection and local priority protection may require fishery administrative departments of local people's governments to make compensation. Those who have been verified to need compensation through investigation shall be compensated by local people's governments according to relevant provisions of the people's governments of all provinces, autonomous regions, and municipalities directly under the Central Government.

**Article 11** Fishery administrative departments under the State Council and people's governments of all provinces, autonomous regions, and municipalities directly under the Central Government shall prescribe natural reserves of aquatic wild animals in regions or waters where aquatic wild animals under State priority protection and local priority protection live and breed, and strengthen the protection and management of aquatic wild animals under State and local priority protection and their living environment. Specific measures shall be otherwise prescribed by the State Council.

## **1.12 Regulation of the People's Republic of China on the Implementation of Terrestrial Wildlife Protection**

(Approved by the State Council on February 12, 1992 and promulgated by the Ministry of Forestry on March 1, 1992)

### **Chapter I General Provisions**

**Article 1** These Regulations are formulated in accordance with the provisions of the "Law of the People's Republic of China on the Protection of Wildlife" (hereinafter referred to as the Law on Protection of Wildlife).

**Article 2** The term "terrestrial wildlife" (hereinafter referred to as the wildlife) mentioned in these

Regulations refers to the species of terrestrial wildlife which are precious or being

endangered and the species which are beneficial or of important economic and scientific research value; whereas the "products of wildlife" refers to any part of wildlife and their derivatives.

**Article 3** The competent department of forestry administration under the State Council shall be responsible for the nationwide administration of terrestrial wildlife. The competent departments of forestry administration under the people's governments of provinces, autonomous regions and municipalities directly under the Central Government shall be responsible for the administration of the terrestrial wildlife in their respective administrative areas. The competent departments of the administration of terrestrial wildlife under the people's governments of the autonomous prefectures, counties and cities shall be designated by the people's governments of the relevant provinces, autonomous regions or municipalities directly under the Central Government.

**Article 4** The relevant governmental authorities at or above the county level shall encourage and support to undertake scientific research on wildlife by the relevant research or teaching units.

**Article 5** The competent department of wildlife administration shall have the right to supervise and inspect the implementation of the Law on the Protection of Wildlife and these Regulations, whereas all units and individuals inspected shall have the obligation to be prepared for such inspection.

## **Chapter II Protection of Wildlife**

**Article 6** Local people's governments at or above the county level shall develop public education for the protection of wildlife, and may fix an appropriate time as the "Month for Protection of Wildlife" or the "Bird-loving Week," etc, in order to enhance the public consciousness of the protection of wildlife.

**Article 7** The competent department of forestry administration under the State Council and the competent departments of forestry administration under the people's governments of the relevant provinces, autonomous regions and municipalities directly under the Central Government shall regularly carry out surveys of wildlife resources and keep records of them so as to provide the basis for the planning of the protection and development of wildlife resources and the preparation of the list or revised list of wildlife species under special protection by the State or local authorities.

General surveys of the wildlife resources shall be conducted once every ten years, the survey plan shall be approved by the competent department of forestry administration under the State Council or the competent department of forestry administration under the people's government of the relevant province, autonomous region or municipality directly under the Central Government.

**Article 8** The competent departments of wildlife administration of the people's governments at or above the county level shall bring coordinate all possible social forces and adopt biological engineering, and technical engineering measures to

maintain and improve the living environment of wildlife, to protect and develop wildlife resources.

Any damage to the living and breeding areas or the living conditions of wildlife under special protection by the State or local authorities by any unit or individual shall be prohibited.

**Article 9** If any injured, sick, hungry, straitened or lost wildlife under special protection by the State or local authorities is found by any unit or individual, same should be promptly reported to the local department of wildlife administration, and the local department of wildlife administration shall take timely measures to rescue. Alternately, such wildlife can be sent to the nearby unit which is capable of rendering rescue thereto. The salvaging unit shall immediately report the case to the competent department of the wildlife administration thereof, and the matter shall be dealt with in accordance with the provisions of the competent department of forestry administration under the State Council.

**Article 10** All units or individuals shall have an obligation to take precautionary measures against any danger potential threatening wildlife under special protection by the State or local authorities. If the protection of wildlife under special protection by the State or local authorities causes losses, compensation may be claimed to the department of wildlife administration under the local people's government. If after investigation, it has been proved that the loss has actually happened and the compensation is necessary, such compensation shall be made by the local people's government in accordance with the relevant provisions of the people's government of the relevant province, autonomous region or municipality directly under the Central Government.

### **Chapter III Administration of Hunting and Catching of Wildlife**

**Article 11** The hunting, catching or killing of wildlife under special protection by the State shall be prohibited.

If, under any of the following cases, the hunting and catching of wildlife under special protection by the State is necessary, the organization concerned must apply for a special hunting and catching license:

(1) Where the wildlife has to be hunted and caught for the purpose of scientific exploration and survey of resources;

(2) Where the origin of the wildlife has to be obtained from nature for the purpose of domestication and breeding thereof under special protection by the State;

(3) Where the wildlife under special protection by the State has to be obtained from nature for the purpose of undertaking scientific research above the provincial level or the production of medicine by the State;

(4) Where the wildlife under special protection by the State has to be obtained from nature for the purpose of popularization of knowledge about wildlife or for the

purpose of education or exhibition;

(5) Where the wildlife under special protection by the State has to be obtained from nature for the purpose of the requirement of State affairs;

(6) Where, on the basis of sound judgement, the wildlife has to be hunted or caught for the purpose of adjusting or controlling the population or structure of wildlife under special protection by the State;

(7) Where the wildlife under special protection by the State has to be caught or hunted for other special reasons.

**Article 12** The procedures for the application for special license for hunting or catching wildlife are as follows:

(1) Where the catching of wildlife under first class State protection is necessary, the application must be made to the competent department of forestry administration under the State Council for a special hunting or catching license, and attached with the views of the competent department of forestry administration under the people's government of the province, autonomous region or municipality directly under the Central Government where the applicant's place of residence is located and where the catching is to be carried out,

(2) Where the catching of wildlife under second class State protection is to be carried out in the applicant's own province, autonomous region or municipality directly under the Central Government, the applicant must apply to the competent department of forestry administration under the people's government of the province, autonomous region or municipality directly under the Central Government for a special hunting or catching license, and attached with the views of the competent department of wildlife administration under the people's government at or above the county level, where the applicant's residence is located,

(3) Where the catching of wildlife under second class State protection is to be carried out across the borders of different provinces, autonomous regions or municipalities directly under the Central

Government, the applicant must apply to the competent departments of forestry administration under the people's governments of the provinces, autonomous regions or municipalities directly under the Central Government where the catching is to be carried out for a special hunting or catching license, the application shall be attached with the views of the competent department of forestry administration under the people's government of the province, autonomous region or municipality directly under the Central Government where the applicant's residence is located.

Any zoo applying for the catching of the wildlife under first class State protection shall have the application examined and approved by the competent department of construction administration under the State Council before it is submitted to the competent department of forestry administration under the State Council for a special hunting or catching license. Where the catching of wildlife under second class State

protection is to be carried out, the application shall be examined and approved by the competent department of construction administration under the government at the same level with the competent department of forestry administration before it is submitted to the competent department of forestry administration under the people's government of the relevant province, autonomous region or municipality directly under the Central Government where the applicant's residence is located for a special hunting or catching license.

The department responsible for issuing the special hunting or catching license shall decide to approve or disapprove the application within three months from the receipt of the application.

**Article 13** No special hunting or catching license shall be issued under any of the following circumstances:

(1) Where there are legal and non-catching or non-hunting method available to the applicant to obtain the species of wildlife under special protection by the State or the products thereof or to fulfill the applicant's purpose;

(2) The application made is not in conformity with the relevant provisions of the State, or the applicant's hunting gear or hunting method is inappropriate, or the season or location for hunting or catching not suitable;

(3) The catching or hunting is not justified taking into consideration the situation of wildlife resources;

**Article 14** The unit or individual that has obtained the special hunting or catching license shall observe the stipulations contained therein with respect to the species, quantity, area, time limit, gear and method of hunting or catching, in order to prevent the wildlife from accidental injury and their living environment from accidental damage. After the completion of hunting or catching, an application for examination shall be made within ten days to the competent department of wildlife administration under the relevant people's government at county level. The competent department of wildlife administration under the people's government at county level shall exercise supervision and inspection over the hunting and catching of wildlife under special protection by the State within their respective administrative area, and timely report the results of supervision and inspection to the department by which the hunting and catching application had been approved.

**Article 15** Those engaging in the hunting or catching of wildlife not under special protection by the State must have the hunting license, and shall observe the stipulations contained therein with respect to the species, quantity, area, time limit, gear and method of hunting.

The hunting license shall be made by the competent department of forestry administration under the relevant people's government of the province, autonomous region or municipality directly under the Central Government in accordance with the stipulations formulated by the competent department of forestry administration under

the State Council, and shall be issued by the competent department of wildlife administration under local people's government at or above the county level or by a department authorized thereby.

The hunting license shall be examined once a year.

**Article 16** The competent departments of forestry administration under the people's governments of provinces, autonomous regions or municipalities directly under the Central Government shall, on the basis of the current situation of non-protected species of wildlife resources within their respective administrative areas, decide the species of wildlife for hunting, and control the annual quota of hunting and catching of wildlife species. The species of wildlife for hunting and the annual quota of hunting and catching shall be drawn up by the competent department of wildlife administration under the people's government at the county level in the light of the principles of preserving resources and sustainable utilization, and approved by the competent department of forestry administration under the people's government of the relevant province, autonomous region or municipality directly under the Central Government, and submitted to the competent department of forestry administration under the State Council for the record.

**Article 17** The hunting activities shall be planned and organized by the competent department of wildlife administration under the local people's government at or above the county level.

The establishment of hunting sites in the appropriate areas shall be approved by the competent department of forestry administration under the people's government of the relevant province, autonomous region or municipality directly under the Central Government.

**Article 18** The utilization of military weapons, air guns, poison, explosives, ground guns, rifles in group, hunting devices not directly operated by man and threatening the safety of livestock or human beings, illuminated hunting at night, annihilation hunting by means of encirclement, fire attack, smoke attack and other hunting gears and methods prohibited by the stipulations of the people's government at or above the county level or its competent department of wildlife administration shall be prohibited.

**Article 19** Field survey or scientific research on wildlife under special protection by the State undertaken by scientific research bodies or educational institutions shall be arranged by the competent department of forestry administration under the State Council if the wildlife species involved are those under first class protection by the State, whereas similar arrangement shall be made by the competent department of forestry administration under the people's government of the relevant province, autonomous region or municipality directly under the Central Government if the wildlife species involved are under second class protection by the State, and the local competent department of wildlife administration shall give support to such survey or research.

**Article 20** Any foreigner intending to make field surveys or to collect specimens

or to make film or videos of wildlife under special protection by the State in the territory of China must apply to the competent department of forestry administration under the people's government of the relevant province, autonomous region or municipality directly under the Central Government where the relevant species of wildlife under special protection by the State exist. After such application has been examined by the above said department, it shall be submitted to and approved by the competent department of forestry administration under the State Council or by a body authorized thereby.

**Article 21** Any foreigner engaging in hunting in the territory of China must observe the relevant provisions of laws and regulations of China, and hunt in the hunting sites open to foreigners that have been approved by the competent department of forestry administration under the State Council.

#### **Chapter IV Administration of Domestication and Breeding of Wildlife**

**Article 22** A domestication and breeding license is required for the domestication and breeding of wildlife under special protection by the State. Where production and economic results are the major objectives of the domestication and breeding of wildlife under special protection by the State, an application must be made to the administrative authorities for industry and commerce for record and registration by presenting the domestication and breeding licenses thereto.

The competent department of forestry administration under the State Council and the competent departments of forestry administration under the people's governments of the relevant provinces, autonomous regions or municipalities directly under the Central Government may, in light of the circumstances of the case, entrust the departments concerned at same level to approve or issue the domestication and breeding licenses of wildlife under special protection by the State. The competent department of forestry administration may entrust the competent department of construction administration at the same level to issue the domestication and breeding licenses if any zoo intends to domesticate and breed wildlife under special protection by the State.

The domestication and breeding licenses shall be made by the competent department of forestry administration under the State Council.

**Article 23** With respect to the species of wildlife imported or introduced from abroad or from other

provinces, autonomous regions or municipalities directly under the Central Government for the purposes of domestication and breeding, appropriate measures shall be adopted to prevent the wildlife from escaping; if it is necessary to release the species of wildlife, the unit concerned shall apply to the local competent department of forestry administration under the people's government of the relevant province, autonomous region or municipality directly under the Central Government, and such an application shall be submitted to and approved by the competent department of forestry administration under the State Council or by a department authorized thereby, after being proved by the research institute designated by the competent department of



forestry administration under the people's government at or above the provincial level.

If the imported wildlife has been released without authorization or has escaped owing to improper handling, same shall be recaptured within a prescribed time limit or other remedial measures must be taken, as ordered by the competent department of wildlife administration.

**Article 24** The precious and endangered species of wildlife imported from abroad may, after the examination and identification by the competent department of forestry administration under the State Council, be considered as the species of wildlife under special protection by the State. While other species of wildlife imported from abroad may, after the examination and identification by the competent department of forestry administration under the people's government of the relevant province, autonomous region or municipality directly under the Central Government, be considered as the wildlife under local special protection.

### **Chapter V Administration of Business Operation and Utilization of Wildlife**

**Article 25** Any unit purchasing wildlife of domestication and breeding under special protection by the State or the products thereof shall be proposed by the competent department of forestry administration under the people's government of the relevant province, autonomous region or municipality directly under the Central Government with consultation with the parties concerned, and approved by the people's government at the same level or the department authorized thereby, and an application, with the documents of approval attached, shall be made to the administrative authorities for industry and commerce for record and registration.

No unit approved for registration according to the preceding paragraph may purchase the wildlife under special protection by the State or the products thereof that is not permitted to be sold.

**Article 26** Anyone engaged in the business operation or utilization of wildlife not under special protection by the State or the products thereof shall apply to the administrative authorities for industry and commerce for record and registration.

Units or individuals approved and registered to be engaged in the business operation or utilization of wildlife not under special protection by the State or the products thereof shall engage in the business operation or utilization thereof within the limitation of the annual quota approved by the competent department of forestry administration under the people's government of the relevant province, autonomous region or municipality directly under the Central Government or by a department authorized thereby.

**Article 27** The sale and purchase of species of wildlife under special protection by the State or the products thereof in the market place shall be prohibited.

If any unit or individual with hunting license intends to sell the lawfully obtained wildlife not under special protection by the State or the products thereof, the sale shall be made in conformity with the species and quantity specified in the hunting license to

the unit which has been approved for registration or in the market place designated by the department concerned under the local people's government.

**Article 28** The competent department of wildlife administration and the administrative authorities for industry and commerce under the people's government at or above the county level shall establish a system of supervision and inspection over the business operation and utilization of wildlife or the products thereof, and to enhance the supervision and control over the business operation and utilization of wildlife or the products thereof.

Transactions of wildlife or their products inside fair markets shall be supervised and managed by the administration authorities for industry and commerce; while those outside fair markets shall be supervised and managed by the departments of wildlife administration, the administration authorities for industry and commerce or units authorized by them.

**Article 29** An application shall be made to the competent department of wildlife administration under the people's government at the county level by attached with the special hunting and catching license and the domestication and breeding license, if transportation or carrying of wildlife under special protection by the State or the products thereof is to be made out of a county. The application shall be submitted to and approved by the competent department of forestry administration under the people's government of the relevant province, autonomous region or municipality directly under the Central Government or by a department authorized thereby. If the transportation of wildlife under special protection by the State is necessary for the breeding of wildlife among different zoos, the application for the transportation shall be approved by the competent department of construction administration under the people's government of the relevant province, autonomous region or municipality directly under the Central Government authorized by the competent department of forestry administration at the same level.

**Article 30** With respect to the export of wildlife under special protection by the State or the products thereof, and the import or export of wildlife or the products thereof which are restricted by international conventions to which China is a party, an application for examination shall be made to the competent department of forestry administration under the people's government of the relevant province, autonomous region or municipality directly under the Central Government where the unit or individual concerned is located. Such application shall be submitted to and approved by the competent department of forestry administration under the State Council or by the State Council. Where the import or export is made for trade purposes, same must be undertaken by the unit which has the right to be engaged in import and export trade.

Where any zoo intends to import or export wildlife described in the preceding paragraph for the purpose of mutual exchanges, same shall be examined and approved by the competent department of construction administration under the State Council, before the application thereof has been approved by the competent department of forestry administration under the State Council or submitted to the State Council for

the approval by the competent department of forestry administration under the State Council.

**Article 31** The economic benefits derived from the exhibition of wildlife or the products thereof in foreign countries and from other activities shall be mainly used for the purpose of wildlife protection.

### **Chapter VI Awards and Penalties**

**Article 32** Any unit or individual that has achieved any of the following deeds shall be awarded by the people's government at or above the county level or by the competent department of wildlife administration thereunder:

(1) Where outstanding contribution has been made in the survey of wildlife resources and protection and maintenance, public education, development and utilization;

(2) Where outstanding achievements have been made in the implementation of laws and regulations on wildlife protection;

(3) Where outstanding achievements have been made in the rescue, protection, domestication and breeding of precious and endangered species of wildlife;

(4) Where any act of violation of laws and regulations on wildlife protection has been stopped in time or has been honored for the prosecution thereof;

(5) Where outstanding contribution has been made in the handling of cases of damage to wildlife resources;

(6) Where great achievements have been made in the scientific research of wildlife or remarkable benefits have been gained in the application of the results of scientific research;

(7) Where five years or more have been worked continuously in the grass-roots unit on the protection and maintenance of wildlife and outstanding achievements have been made;

(8) Where other special contribution has been made in the protection and maintenance of wildlife.

**Article 33** Illegal catching or killing of wildlife under special protection by the State shall be liable to be prosecuted in accordance with the Supplementary Provisions on the Punishment of Crimes for Catching or Killing Precious or Endangered Species of Wildlife Under Special Protection by the State promulgated by the Standing Committee of the National People's Congress of the People's Republic of China, if the case is obviously not serious and the damage is a minor one, or the circumstances of the offence are to slight to be punished, the department of wildlife administration shall confiscate the capture quarries, hunting and catching gears and the illegal income obtained there from, and revoke the special hunting and catching license, besides a fine of below ten times the value of the capture quarries or, in case there is no capture quarry,

a fine below 10,000 yuan (RMB) shall be imposed.

**Article 34** Anyone, in violation of the provisions of the laws and regulations on wildlife protection,

hunting or catching wildlife in non-hunting area or during a season closed to hunting, or using prohibited hunting gear or methods for the hunting and catching of wildlife which are not under special protection by the State, shall be imposed a fine in accordance with the provisions of **Article 32** of the Law on the Protection of Wildlife, and the fine shall be imposed according to the following stipulations:

(1) In case there are capture quarries, a fine below eight times the value of the capture quarries shall be imposed;

(2) In case there is no capture quarry, a fine below 2,000 yuan (RMB) shall be imposed.

**Article 35** Anyone, in violation of the provisions of the laws and regulations on wildlife protection, hunting or catching wildlife which are not under the special protection by the State without a hunting license or in violation of the stipulations of the hunting license, shall be imposed a fine in accordance with provisions of **Article 33** of the Law on the Protection of Wildlife, and the fine shall be imposed according to the following stipulations:

(1) In case there are capture quarries, a fine below five times the value of the capture quarries shall be imposed;

(2) In case there is no capture quarry, a fine below 1,000 yuan (RMB) shall be imposed.

**Article 36** Anyone, in violation of the provisions of the laws and regulations on wildlife protection, destroying the main areas where wildlife under special protection by the State or local authorities lives and breeds in nature reserves or areas closed to hunting, shall be imposed a fine in accordance with the provisions of **Article 34** of the Law on the Protection of Wildlife, and the fine shall be imposed below three times the cost for the restoration thereof.

Where the main areas in which wildlife not under special protection by the State or local authorities lives and breeds in nature reserves or areas closed to hunting are destroyed, the competent department of wildlife administration shall order to stop the destructive action and to restore these areas to their original state within a prescribed time limit, besides, a fine below two times the cost for restoration thereof shall be imposed.

**Article 37** Where anyone in violation of the provisions of the laws and regulations on wildlife protection, sells, purchases, transports or carries wildlife under special protection by the State or local authorities or the products thereof, such wildlife and products and his unlawful income obtained there from shall be confiscated by the administrative authorities for industry and commerce or by the competent department

of wildlife administration authorized thereby, and a fine below ten times the value thereof shall be imposed.

**Article 38** Anyone forging, selling or transferring a hunting license or a domestication or breeding license shall be imposed a fine below 5,000 yuan (RMB) in accordance with the provisions of **Article 37** of the Law on the Protection of Wildlife. Anyone forging, selling or transferring special hunting and catching license or an import or export permit shall be imposed a fine below 50,000 yuan (RMB) in accordance with the provisions of **Article 37** of the Law on the Protection of Wildlife.

**Article 39** Where anyone, in violation of the provisions of the laws and regulations on wildlife protection, domesticates or breeds wildlife under special protection by the State without domestication or breeding license or domesticates or breeds the wildlife under special protection by the State beyond those specified in the domestication or breeding license, his unlawful income shall be confiscated by the competent department of wildlife administration, and a fine below 3,000 yuan (RMB) shall be imposed; besides, the species of wildlife may be concurrently confiscated and the domestication and breeding license may be revoked.

**Article 40** Where any foreigner makes surveys, collects specimens or makes films or videos of wildlife under special protection by the State in the field within the territory of China without being approved, the data of survey and shooting and the specimens collected by him shall be confiscated by the competent department of wildlife administration, and he may concurrently be imposed a fine below 50,000 yuan (RMB).

**Article 41** Anyone who has committed any of the following acts being not so serious as to constitute a crime shall, in accordance with the provisions on Penalties for Violation of Public Security Regulations, be punished by the public security organs:

- (1) Refusing or impeding the staff of wildlife administration to carry out their duty;
- (2) Stealing, robbing or intentionally damaging instruments, devices or facilities for protection of wildlife;
- (3) Stealing, robbing or snatching the species of wildlife that are not under special protection by the State or the products thereof;
- (4) Hunting or catching without being approved a small number of wildlife that are not under special protection by the State.

**Article 42** Where anyone has violated the provisions of the laws and regulations on wildlife protection and has been ordered to recapture the wildlife or to carry out the restoration within a prescribed time limit but has failed to do so, the recapture or restoration may be carried out by the competent department of wildlife administration or the department authorized thereby, and the total cost for recapture or restoration shall be borne by the violator that has been ordered to do the recapture or restoration.

**Article 43** Anyone who has violated the provisions of the laws and regulations on wildlife protection, if the case is so serious as to constitute a crime, shall be liable to be

prosecuted.

**Article 44** The wildlife or the products thereof confiscated in accordance with the provisions of the laws and regulations on wildlife protection shall be dealt with according to the provisions made by the competent department of forestry administration under the State Council.

### **Chapter VII Supplementary Provisions**

**Article 45** The competent department of forestry administration under the State Council shall be responsible for the interpretation of these Regulations.

**Article 46** These Regulations shall come into force as of the date of promulgation.

## **1.13 Forestry Law of the People's Republic of China (excerpts)**

(Adopted at the Seventh Meeting of the Standing Committee of the Sixth National People's Congress on September 20, 1984; amended in accordance with the Decision on the Revision of the Forest Law of the People's Republic of China of the Second Meeting of the Standing Committee of the Ninth National People's Congress on April 29, 1998 for the first time; amended in accordance with the Decision of Amending Some Laws at the Tenth Meeting of the Standing Committee of the Eleventh National People's Congress on August 27, 2009, for the second time; and revised at the Fifteenth Meeting of the Standing Committee of the Thirteenth National People's Congress on December 28, 2019.)

**Article 28** The State shall strengthen the protection of forest resources and give full play to the diverse functions of forests in conserving water and soil, regulating climate, improving environment, maintaining biodiversity and providing forest products, etc.

**Article 31** The State shall establish a natural protected area system with national parks as the main body in typical forest ecological areas in different natural areas, forest areas where precious animals and plants breed and grow, natural tropical rain forest areas and other natural forest areas with special protection value, and strengthen their protection and management.

The State supports the protection and restoration of forest resources in ecologically fragile areas.

The people's governments at or above the county level shall take measures to protect the wild plant resources with special value.

**Article 39** It is forbidden to destroy forests for reclamation, quarrying, sand mining, soil mining and conduct other activities that may destroy trees and forest lands.

It is forbidden to discharge to forest lands the sewage and sludge containing heavy metals or other toxic and hazardous substances that exceed the discharge standard, and to discharge dredging sediments, tailings, slags, etc. that may cause pollution to forest lands.

It is forbidden to cut firewood, destroy seedlings, and graze in the young forest lands.

It is forbidden to move without authorization or damage the forest protection signs.

## **1.14 The Yangtze River Protection Law of the People's Republic of China (excerpts)**

(Adopted at the 24<sup>th</sup> Meeting of the Standing Committee of the Thirteenth National People's Congress on December 26, 2020)

**Article 31** The State shall strengthen the protection of ecological water use in the Yangtze River basin. The water resources department under the State Council shall, in conjunction with relevant departments under the State Council, determine ecological flow control indicators for the Yangtze River's main stream, major tributaries and important lake sections. Other river and lake ecological flow control indicators shall be determined by the water resources departments of the local people's governments at or above the county level in the Yangtze River basin in conjunction with relevant departments of the people's governments at the same level.

Relevant river basin management agencies of the water resources department under the State Council shall include the ecological water volume in the annual water volume allocation plan to meet the basic ecological water demand of rivers and lakes, ensure the ecological flow during the dry season and fish spawning period, the water volume and water level of important lakes, and maintain a balance in salt water and fresh water in the Yangtze River estuary.

**Article 53** The State shall exercise strict fishing control over the key waters of the Yangtze River basin. Productive fishing shall be completely banned in the reserves of Yangtze River basin aquatic life; within the time limit set by the State, productive fishing of natural fishery resources shall be completely banned in key water areas such as the main stream and major tributaries of the Yangtze River, large lakes connecting the Yangtze River and designated areas in the Yangtze River estuary. Specific measures shall be formulated by the agricultural and rural affairs department under the State Council in conjunction with other relevant departments under the State Council.

**Article 60** The water resources department under the State Council shall, in conjunction with the relevant departments under the State Council and the local people's government in the Yangtze River estuary, formulate and implement plans for ecological and environmental restoration in the Yangtze River estuary and other protection measures in accordance with the requirements of land-sea coordination and river-sea linkage, strengthen comprehensive water, sand, salt, tidal flat, and biological population monitoring, take effective measures to prevent seawater intrusion and backflow, and maintain the good ecological functions of the Yangtze River estuary.

**Article 86** Where productive fishing is carried out in aquatic organism protection areas in the Yangtze River basin in violation of the provisions of this Law, or productive fishing of natural fishery resources is carried out in key waters such as the main stream and major tributaries of the Yangtze River, large lakes connected with the Yangtze River, and the designated area of the Yangtze River estuary during the period of moratorium, the departments of agriculture and rural affairs of the people's governments at or above the county level shall confiscate the catch, the illegal income derived therefrom and the fishing boats, fishing gear and other tools used in the illegal fishing, and impose a fine of not less than 10,000 yuan but not more than 50,000 yuan. Where fishing is carried out by electrocuting, poisoning fish or blast fishing and where there are other serious circumstances involved, a fine of not less than 50,000 yuan but not more than 500,000 yuan shall be imposed.



## **1.15 Measures for the Administration of Special Marine Protected Areas (excerpts)**

**Article 2** The term "special marine protected areas" as mentioned in the Measures refers to the areas with special geographical conditions, ecosystems, biological and non-biological resources and special requirements for marine development and utilization, in which effective protective measures and science-based development approaches are needed for special management.

**Article 5** The State Oceanic Administration shall be responsible for the supervision and administration of special marine protected areas across the country. It shall, in conjunction with the people's governments of coastal provinces, autonomous regions and municipalities directly under the Central Government and the relevant departments under the State Council, formulate plans for the building and development of special marine protected areas at the national level and supervise their implementation, and guide the building and development of special marine protected areas at the local level.

**Article 18** The people's governments at or above the county level where the special marine protected areas that have been approved for establishment shall strengthen the administration of the special marine protected areas and establish management agencies. When necessary, the Chinese marine surveillance institutions may be established within the management agencies of the special marine protected areas to perform the duties of marine law enforcement, and to be subject to the management and guidance of the superior institutions of the Chinese marine surveillance.

**Article 19** The main duties of the management agencies of special marine protected areas include:

(1) to implement the national and local marine laws and regulations and policies regarding the marine ecological protection, resources development and utilization;

(2) to develop and implement the management systems of special marine protected areas;

(3) to formulate and implement the master plan and annual work plan of the special marine protected areas, and to take targeted managerial measures;

(4) to organize the building of facilities for the management and protection, monitoring, scientific research, tourism, publicity and education of and in special marine protected areas;

- (5) to organize the daily patrol and management of special marine protected areas;
- (6) to organize the development of eco-compensation plans, ecological protection and restoration plans, and implement such plans and measures regarding special marine protected areas;
- (7) to organize the implementation and coordination of the protection, utilization and protection of the rights and interests of the special marine protected areas;
- (8) to organize and manage the eco-tourism activities within special marine special protected areas;
- (9) to organize the monitoring, surveillance, evaluation and scientific research activities within special marine protected areas;
- (10) to organize and implement publicity, education, training and international cooperation and exchange activities within special marine protected areas;
- (11) to create files on the resources, environment and management information of special marine protected areas;
- (12) to publish information related to special marine protected areas;
- (13) to perform other duties that shall be performed by the management agencies of special marine protected areas.

**Article 32** The ecological protection, recovery and resource utilization activities in the special marine protected areas should be undertaken in line with the requirements on the management of their functional areas.

In the key protected zones, a strict protection system shall be implemented to ban all the engineering construction activities that are unrelated to the protection.

In the moderate utilization zones, under the premise of ensuring the safety of the marine ecosystem, the moderate use of marine resources can be allowed. The ecologically-friendly resources utilization activities that are consistent with the protection objectives of the protected areas will be encouraged to develop eco-tourism, ecological aquaculture and other marine ecological industries.

In the ecological and resource restoration zones, appropriate artificial ecological regulation and restoration measures can be taken to restore the marine ecology, resources and key habitats, based on the results of scientific research.

In the reserved zones, human interference will be strictly controlled to ban the production activities and any form of engineering construction activities that may change the natural ecological conditions in these zones.

**Article 33** Various key marine ecological areas, including areas where typical marine ecological systems are distributed, natural marine landscapes, historical marine sites, migratory channels, spawning grounds, feeding grounds, wintering grounds, and habitats for rare and endangered marine species and important marine life shall be strictly protected.

No organization or individual shall be allowed to arbitrarily change the coastal and submarine topography and other natural ecological and environmental conditions in the special marine protected areas. If it is necessary to change such conditions, these activities shall be approved by the competent marine administrative authorities after the scientific feasibility study.

**Article 38** Various construction projects or development activities within special marine protected areas shall be strictly controlled. For the key construction projects that are in line with the master plan of special marine protected areas, they must, upon approval by the protected areas' management agencies, undergo marine engineering environment impact assessment and sea area use demonstration in accordance with the requirements of relevant laws and regulations. In the reports of marine engineering environmental impact assessment and the sea area use demonstration, a special chapter on ecological and environmental protection, ecological restoration and eco-compensation plans and specific measures shall be prepared.

**Article 39** The activities that may seriously affect the marine ecology within special marine protected areas, such as quarrying, sand digging, mudflat reclamation, land reclamation from the sea shall be strictly restricted. If it is necessary to implement the above-mentioned activities, they shall undergo scientific demonstration, and shall be submitted for approval in accordance with the provisions of relevant laws and regulations.

**Article 41** The tourist capacity in tourism areas shall be determined in a science-based way to reasonably control the tourist flow, strengthen the protection of natural landscapes and tourist attractions. It is prohibited to admit tourists beyond the allowed capacity and to carry out tourism activities in the areas where security cannot be guaranteed.

Where visits or tourism activities will be organized in marine parks, they must be carried out in accordance with the approved scheme, and the management must be strengthened. Organizations and individuals who enter the special marine protected areas for visit and travelling shall be subject to the management of the marine park's administrative agency.

Any visit and tourism activities that are inconsistent with the marine park's protection objectives shall be prohibited.

## **2 National Regulatory Documents**

### **2.1 Outline of China ecological environmental protection (Excerpt)**

(The State Council, 2000)

7 Establish eco-function reserves. Headwater areas of rivers, important water resource conservation areas, major reserves and monitor areas of conservation of water and soil, flood detention basin, wind break and sand fixation areas and important fishery areas are important eco-function areas. These areas play significant roles on keeping the ecological balance in region and basin, mitigating natural disasters, ensuring the ecological safety of nation and regions. Existing vegetation and natural ecosystem shall be protected strictly. We shall take protection steps, build eco-function reserves to prevent ecological destruction and degeneration of ecological functions.

8 These measures shall be taken in eco-function reserve:

Stop all development activities that can result in eco-function degeneration and other artificial damage.

Stop all construction projects that can pollute the environment heavily.

Control the population growth strictly. Necessary immigration shall be taken where the population are beyond the support capacity of the region.

Change the extensive development pattern, develop ecological economy.

Reestablish and restore damaged important ecosystem, contain the trends of ecological deterioration.

14 Development of species resources shall protect biodiversity and shall keep the ecological safety. All forms of endangered species of wild fauna and flora gathering and hunting shall be prohibited. Illegal trade in endangered species of wild fauna and flora shall be cracked down.

### **2.2 Reinforce the Management of the Nature Reserves (Excerpt)**

(General Office of the State Council, 2010)

The development and construction in nature reserves shall be strictly limited. Nature reserves are zones where developments are not allowed. Any development and construction are prohibited in the core zones and buffer zones of nature reserves. Development and construction in the experimental zone shall not affect function of

nature reserves, and shall not damage natural resources or landscapes. Reinforce the management of mineral resources in nature reserves. Illegal mining and prospection in nature reserves.

## **2.3 Reinforce the Supervision of Construction Projects in Nature Reserves (Excerpt)**

(Ministry of Environmental Protection, National Development and Reform Commission, Ministry of Finance, Ministry of Land and Resources, Ministry of Housing and Urban-rural Development, Ministry of Water Resources, Ministry of Agriculture, State Forestry Administration, China Academy of Science, State Oceanic Administration, 2015)

### **2 Strictly enforce the relevant laws and regulations**

Nature reserve are zones where development is prohibited. Developments and constructions which don't match the functions of nature reserves are strictly prohibited. Local authorities shall strictly implement the regulations of People's Republic of China on nature reserves and other related laws and regulations to make sure no development and construction, and no production and commercial activities in the core zones or buffer zones of the nature reserves. Production activities that can pollute the environment, damage nature resources of landscape in the experimental zones of nature reserves are also prohibited.

### **4 Punish illegal development and construction activities**

Local authorities shall punish the illegal development and construction activities according to relevant regulations. Mining, reclaiming, felling, grazing, sand dredging and stone quarrying in the nature reserves are prohibited according to laws. The illegal construction of wind power (or water power) facilities, real estate development, tourism and other activities in nature reserves shall be stopped or shut down immediately. The ecological restoration shall be done. Construction projects that are finished before the approval is granted or the buildings are different from approval, the construction or use shall be stopped immediately, and the ecological restoration shall be done. Projects that polluted or affected the environment shall make rectifications within a time limit. Projected shall be shut down if still not conforming standards after rectifications. Existing commercial exploration rights, mining rights and water-taking rights shall be stopped within a time limit. Exploration rights, mining rights and water-taking rights existed before the nature reserves was established, or exploration rights, mining rights and water-taking rights with complete formalities and approvals from the nature reserve management department shall also be stopped, after the management department make a compensation plan that can protect the legal rights of the exploration rights, mining rights and water-taking rights' owners. Under the condition of guaranteeing the right to live of local residents, the construction of local residents' personal buildings shall keep the land management laws and nature reserve management regulations. New buildings

or conversion of buildings shall keep local traditional architectural style, and not damage nature landscape. For other problems in the nature reserves left over by history, the management departments shall make a plan to solve them step by step. If the development activities damage the environment seriously, all environmental impact assessment of construction projects in relevant zone shall be stopped. Relevant departments and staffs shall be to blame.

## **2.4 Circular of the General Office of the State Council on Issuing the Scheme of Wetland Protection and Restoration System (Excerpts from No.89 [2016] of the General Office of the State Council)**

(6) Improve the wetland protection and management system. The relevant departments of wetland protection and management under the State Council shall be responsible for guiding the national wetland protection and restoration efforts. The relevant departments of wetland protection and management under the local people's governments at all levels shall be responsible for guiding the wetland protection and restoration efforts in their areas under their jurisdiction. For wetlands of national and local importance, their management will be enhanced through the establishment of national parks, wetland nature reserves, wetland parks, aquatic germplasm conservation zones, special marine protected areas, etc. Building of wetland protection and management system will be accelerated in ecologically sensitive and fragile areas. Efforts will be made to enhance the capacity building of wetland protection and management institutions at all levels so as to lay a solid foundation for wetland protection. For wetlands of national and local importance, the jobs of wetland management and protection for public good can be created. A three-level wetland protection and management network will be established at county, township and village levels to innovate the wetland protection and management form. (The State Forestry Administration, the Ministry of finance, the Ministry of Land and Resources, the Ministry of Environmental Protection, the Ministry of Water Resources, the Ministry of Agriculture, the State Oceanic Administration and other agencies will be responsible for respective matters according to the division of responsibilities)

(7) Implement the control of total wetland area. The targets for controlling the wetland area at national and provincial (autonomous regions and municipalities) levels will be defined, and the targets will be broken down into actionable steps at different levels. The scope of wetlands included in the red line of ecological protection will be reasonably demarcated, and the list of wetlands will be clearly defined to specify the wetland sites. Where the wetlands have been approved to be requisitioned, occupied

and converted to other uses, the land use organizations should, in accordance with the principle of " supplementing before occupation and striking a balance between the occupation and supplement", be responsible for restoring or rehabilitating the wetlands whose area and quality are equivalent to those of wetlands that have been occupied so as to ensure that the wetland area is not reduced. (The State Forestry Administration, the Ministry of Land and Resources, the National Development and Reform Commission, the Ministry of Environmental Protection, the Ministry of Water Resources, the Ministry of Agriculture, the State Oceanic Administration and other agencies will be responsible for respective matters according to the division of responsibilities)

(8) Improve the ecological function of wetlands. Criteria to assess wetland ecological status will be developed to establish a sound wetland evaluation indicator system, in terms of water quantity, water quality, soil, wild animals and plants and other factors that may impact the wetland ecosystem health. By 2020, the rate for the water quality of water function zones in major rivers and lakes to meet the standards will reach 80% or higher, the rate of retaining natural shorelines will be not less than 35%, and the number of water bird species will be not less than 231, and populations of national wetland wild animals and plants will not be reduced. (The State Forestry Administration, the Ministry of Environmental Protection, the Ministry of Water Resources, the Ministry of Agriculture, the Ministry of Land and Resources, the State Oceanic Administration and other agencies will be responsible for respective matters according to the division of responsibilities)

(10) Establish a mechanism on wetland use control. The functions of different types of wetlands will be defined according to the positioning of main functions to implement negative list management. It is prohibited to: 1) requisition, and occupy wetlands of national and local importance (the general wetlands can only be wisely used under the premise of protection); 2) occupy natural wetlands and other water conservation spaces (the wetlands that have already been occupied should be restored within a time limit); 3) convert, reclaim, fill, or discharge wetlands; 4) permanently cut off wetland water sources; 5) discharge excessive pollutants into wetlands; 6) damage the wetland wildlife habitats and fish migratory channels; and 7) destroy the wetlands and their ecological functions. (The State Forestry Administration, the Ministry of Land and Resources, the Ministry of Environmental Protection, the Ministry of Water Resources, the Ministry of Agriculture, the State Oceanic Administration and other agencies will be responsible for respective matters according to the division of responsibilities)

(11) Regulate the management of wetland use. Efforts will be made to improve the management system of wetland-related resources use, reasonably define wetland-related resources use intensity and time limit, so as to avoid damage to the wetland ecological factors, ecological processes, and ecological services/functions, etc. Efforts will also be made to strengthen the management of activities, such as water abstraction, pollutant emission, wild animal and plant resources utilization, sand digging, soil use,

mining, introduction of alien species, and scientific surveys in which foreigners may be involved. (The Ministry of Land and Resources, the Ministry of Environmental Protection, the Ministry of Water Resources, the Ministry of Agriculture, the State Forestry Administration, the State Oceanic Administration and other agencies will be responsible for respective matters according to the division of responsibilities)

(15) Carry out wetland protection and restoration programs/projects. The competent forestry department under the State Council and the provincial forestry departments in charge shall, in conjunction with the relevant departments at the same level, prepare the plans on wetland protection and restoration programs/projects. A method of focusing on natural recovery and combining artificial restoration will be adopted to control and restore the natural wetlands which are contiguously distributed, have become severely fragmented, and whose functions have become degraded. Priority will be given to the restoration of wetlands of national and local importance whose ecological functions have become severely degraded. A string of means, such as pollutant clean-up, land remediation, topography restoration, natural wetland shoreline maintenance, river and lake water system connection, vegetation restoration, wildlife habitat restoration, removal of purse nets, ecological resettlement, wetland pest prevention and control should be leveraged to gradually restore the wetland ecological functions, enhance the wetland carbon sink function, and maintain the wetland ecosystem health. (The State Forestry Administration will lead the initiative, while the National Development and Reform Commission, the Ministry of Finance, the Ministry of Land and Resources, the Ministry of Environmental Protection, the Ministry of Water Resources, the Ministry of Agriculture, the State Oceanic Administration and other agencies will be involved)

(16) Improve the mechanism on ecological water use. The water resources use should be closely combined with the wetland's protection, so as to coordinate the balance of water resources in the region or river basins, and to maintain the ecological water use demand of wetlands. From the perspective of ecological security and hydrological regime, an ecological replenishment mechanism for wetlands will be established using an integrated river basin management approach, with clearly defined technical routes, financial inputs, as well as responsibilities and obligations of relevant departments. The relevant wildlife protection needs should be fully taken into consideration in reservoir storage and flooding. (The Ministry of Water Resources will lead the initiative, while the National Development and Reform Commission, the Ministry of Finance, the State Forestry Administration, the Ministry of Environmental Protection, the Ministry of Agriculture, the State Oceanic Administration and other agencies will be involved)

(19) Strengthen the wetland monitoring network. Efforts should be made to integrate the planning for the setting up of monitoring stations for wetlands of national importance, establish a monitoring and evaluation network for wetlands of national importance, and improve the quality of monitoring data and information technology. A sound wetland monitoring data sharing system will be established to achieve effective



integration, interconnection and sharing of wetland resources-related data acquired by forestry, land and resources, environmental protection, water resources, agriculture, marine and other sectors. The ecological risk early warning will be strengthened to prevent adverse changes in the characteristics of wetland ecosystems. (The State Forestry Administration will lead the initiative, while the Ministry of Land and Resources, the Ministry of Environmental Protection, the Ministry of Water Resources, the Ministry of Agriculture, State Oceanic Administration and other agencies will be involved)

## **2.5 Circular of the State Council on Strengthening the Protection of Coastal Wetlands and Strictly Controlling Land Reclamation from Sea (Guo Fa [2018] No.24 Excerpts)**

**(3) Strictly control new projects.** We will better control of the total amount of land reclamation from sea, cancel the indicators in annual local plans for land reclamation from sea, and completely stop the approval of new land reclamation projects except for major national strategic projects. For new land reclamation projects, ecological protection and restoration should be enhanced. Construction and restoration should be conducted at the same time to minimize the reduction of ecosystem services and functions. For the land reclamation from sea projects which have not been approved or have been approved through deceptive means, they should be strictly investigated and punished by the relevant departments, be ordered to restore the original state of the sea, and be punished severely according to law.

**(5) Carry out a comprehensive survey on the current status and formulate a scheme to address the problem.** The Ministry of Natural Resources should, in conjunction with the National Development and Reform Commission and other relevant departments, make full use of satellite remote sensing and other technical means to complete the national survey on the current status of land reclamation from sea by the end of 2018. The objectives are to have a good understanding about the basis for planning, approval status, the sea users, the area of using the sea, the status of utilization, etc., identify illegal land reclamation cases and the cases which have already enclosed but have not yet reclaimed the sea, and report such cases to the relevant provincial people's governments. The relevant provincial people's governments should, in accordance with the principles of "giving priority to ecological protection, being resource-saving and intensive, implementing policies according to different types, being positive and prudent", and by taking into account the findings of special surveillance on land reclamation from sea in 2017, determine the list of the historical

outstanding problems regarding land reclamation from sea. It is required to formulate the proposal on how to resolve such problems by the end of 2019, put forward the annual targets, and strictly control projects that are aimed to reclaim lands from sea for real estate development, or for low-level, repeated construction of tourism, leisure and entertainment facilities, and the projects that may pollute marine ecological environment. In principle, the application for new land reclamation projects proposed by the provinces (autonomous regions and municipalities directly under the Central Government) that have failed to address all the outstanding problems related to land reclamation from sea projects will be dismissed.

**(6) Properly handle the land reclamation from sea projects that have previously been approved according to law.** The provincial people's governments are responsible for organizing the relevant local people's governments to supervise and guide the persons with the right to use the sea areas to properly handle such cases depending on the actual progress of the land reclamation projects. For the projects which have completed land reclamation, they should, in principle, intensively use the sea areas and conduct ecological restoration if necessary. For the projects that have previously been approved by the end of 2017 but have not yet completed land reclamation from sea, they should control the area for land reclamation to the largest extent, and carry out ecological restoration if necessary.

**(7) Deal with illegal land reclamation projects according to law.** The people's governments at the provincial level are responsible for seriously investigating and punishing the illegal land reclamation projects according to relevant laws and regulations, and organizing relevant local people's governments to carry out ecological assessment. According to the current status of illegal land reclamation projects and the extent of impact on the marine ecological environment, the people's governments at the provincial level shall instruct the sea users to properly handle such cases, to compensate for ecological damages and carry out ecological restoration, and to resolutely dismantle those facilities that have seriously damaged the marine ecological environment. If such projects have no significant impact on the marine ecological environment, the land reclamation area shall be controlled to the greatest extent, and rectification shall be carried out within a time limit in accordance with relevant provisions. For the illegal land reclamation projects in which the armed forces are involved, the relevant departments under the Central Military Commission, should, in conjunction with the relevant local people's governments, seriously deal with such cases in accordance with the relevant laws and regulations.

**(8) Strictly retain the red line of ecological protection.** For the red line of marine ecological protection which has been delineated, the strictest protection and supervision shall be implemented. The land reclamation projects that have illegally occupied the red line shall be stopped to ensure that the area within the marine ecological protection red line is not reduced, the standard for the rate of retaining mainland natural shorelines is not lowered, and the length of the existing sandy shorelines of the islands is not shortened.

**(9) Strengthen the protection of coastal wetlands.** Management of various types of existing coastal natural protected areas will be fully enhanced, and a number of marine nature reserves, special marine protected areas and wetland parks will be selected and established. Key coastal wetlands and key species habitats that urgently need to be protected, such as the Dagang Wetland in Tianjin, the Huanghua Wetland in Hebei, the Rudong Wetland in Jiangsu, the Dongshan Wetland in Fujian and the Dapeng Bay Wetland in Guangdong, will be included in the scope of protection.

**(10) Enhance coastal wetland restoration.** Technical specifications related to coastal wetland ecological damage identification and assessment, compensation, and restoration shall be developed. The principle of focusing on natural restoration and being supplemented by artificial restoration will be followed. Efforts should be made to provide stronger financial support, and promote the major ecological restoration projects, such as "Blue Bay", "Mainly Planting Mangroves in the South and Chinese Tamarisk in the North", "Building Eco-islands". In addition, damaged coastal wetlands will be gradually restored by means of returning land reclamation to the sea, returning aquaculture to mudflats, and returning farmlands to wetlands, etc.

**(11) Improve the surveying and monitoring system.** A unified wetland technical standard and findings of the third national land survey will be used to conduct a survey of wetlands site by site across the country, including coastal wetlands, so as to accurately evaluate and analyze wetland protection, utilization, tenure ship, ecological status and functions. A dynamic monitoring system will be established to strengthen the monitoring of land reclamation status and understand the dynamic changes of coastal wetlands and natural shorelines in a timely manner.

**(12) Strictly control the land use.** The land and sea will be integrated as a whole, and the coastal wetland protection should be included in the overall land space planning for unified arrangements. The control of land space uses will be enhanced to improve the threshold of environmental access. The land reclamation activities in ecologically fragile and sensitive sea areas with weak self-purification ability will be strictly controlled. The projects which have been eliminated or controlled by the national industrial policies will be banned in the coastal wetlands so as to achieve the overall protection, systematic restoration and integrated control of mountains, rivers, forests, farmlands, lakes and grasslands.

**(13) Strengthen the supervision and inspection of land reclamation from sea.** The Ministry of Natural Resources should include speeding up the handling of the historical issues of land reclamation into the key matters for supervision, urge local governments to rectify and implement these measures, enhance accountability for supervision, and hold local governments mainly accountable for these duties. The problems found in the first round of special inspection for land reclamation from sea should be rectified to ensure that the rectification measures and accountability system can be put in place. In the second half year of 2018, a special surveillance will be launched to "review" the work so as to ensure that the State's policy of strictly

controlling land reclamation has been truly implemented and to resolutely curb and severely crack down on illegal activities of land reclamation from sea.

## 2.6 Rules on Wetland Protection and Management

(Promulgated by the State Forestry Administration via the Decree No. 32 on March 28, 2013; and revised by the State Forestry Administration via the Decree No. 48 on December 5, 2017)

**Article 3** The State shall implement the policies of comprehensive protection, science-based restoration, wise use and sustainable development of wetlands.

**Article 5** The departments in charge of forestry under the people's governments at or above the county level and the agencies in charge of wetland protection and management should strengthen publicity and education and training related to wetland conservation, and carry out publicity and education activities on the occasions of the World Wetlands Day, the World Wildlife Day, Bird-loving Week and the Publicity Month on Wild Animals Protection, so as to raise the public awareness of wetland conservation.

**Article 8** The wetland protection plan shall include the following components:

- (1) the distribution, types and characteristics of wetland resources, water resources, and wildlife resources;
- (2) the guideline, principles, objectives and tasks of wetland protection and use;
- (3) key projects and layout on wetland ecological protection;
- (4) investment estimation and benefit analysis;
- (5) safeguarding measures.

**Article 11** The departments in charge of forestry under the people's governments at or above the county level can protect wetlands in forms of wetland nature reserve, wetland parks, small wetland protected areas, improve the wetland protection and management institutions and systems, and enhance the wetland protection system to strengthen wetland protection.

**Article 15** The wetland sites that meet the criteria of Ramsar sites can apply for the designation of Ramsar sites.

**Article 16** The State Forestry Administration shall guide and supervise the protection and management of Ramsar sites, regularly inspect and assess the ecological conditions of Ramsar sites, and announce the results to the public.

**Article 17** The administrative agencies for the protection and management of Ramsar sites shall establish an early warning system on wetland ecology, formulate and implement the wetland management plan, carry out dynamic monitoring, and create data files.

## **2.7 Circular of the Ministry of Natural Resources on Further Clarifying the Relevant Requirements for Resolving the Historical Issues on Land Reclamation from Sea (Natural Resources Regulations (2018) No.7)**

### **II. Properly handle the land reclamation projects that have already obtained the right to use the sea but have not used the sea area**

**(2) Carrying out ecological restoration when necessary.** According to the actual conditions of the land reclamation projects, the requirements on ecological protection objectives or measures, and by referring to the *Technical Guidelines on Preparing the Plans for Ecological Protection and Restoration of Land Reclamation Projects* (Trial), the provincial departments in charge of natural resources shall supervise and guide the persons with sea area use right to carry out ecological protection of land reclamation projects, restore the damaged habitats, improve the public availability and landscape ecological effects of newly built shorelines, and create new coastlines that are natural and ecological.

**(3) Controlling the area of land reclamation to the largest extent.** Where the land reclamation from sea projects have not yet been completed, efforts should be made to optimize the design of land reclamation, minimize the occupation of shoreline resources, scientifically and reasonably determine the land reclamation area, in accordance with the relevant requirements of the "*Indicators of Controlling the Area for Sea Use in Construction Projects* (Trial)" and the concept of using sea area in an ecology-friendly way. Where the land reclamation projects are carried out within the red line area of marine ecological protection, they should, in principle, be suspended. If it is indeed impossible to suspend the projects, the activities that are proposed to be undertaken for sea area development and utilization must meet the requirements on red line control.

### **III. Handle the land reclamation projects that have not secured the right of use according to law**

The scheme of resolving the local historical problems in terms of land reclamation

from sea should be reported to the Ministry of Natural Resources for record-keeping by the end of June 2019. Before that, for the sea areas that have been reclaimed to build major investment projects in the near and medium term, the relevant provinces (autonomous regions and municipalities) should, according to the provisions of No.24 Document of the State Council, organize the ecological assessment, and evaluate the impacts of such projects on the marine ecological environment in a scientific way, clearly define the targets and requirements for ecological damage compensation and ecological restoration, and instruct the sea area users to properly handle the issue. Where illegal use of the sea area is involved, such activities should be severely punished in accordance with the law.

**(5) Organizing ecological restoration.** Relevant city and county departments in charge of natural resources should coordinate with the local people's governments to organize ecological restoration, in accordance with the ecological protection and restoration schemes that have been put on record, and with the principle of "whoever destroys will restore". For the contiguously concentrated or adjacent land reclamation projects, the overall ecological restoration can be organized according to the actual situations. For the land reclamation projects which have been assessed to severely damage the marine ecological environment, the users who have illegally use the sea areas shall be instructed to remove such facilities.

## **2.8 Measures for the Administration of National Wetland Parks (Excerpts)**

**Article 10** The national wetland parks shall determine the stake delimitation in accordance with the scope of the master plan. Any organization or individual shall not arbitrarily change and move the landmarks.

**Article 11** Conservation zones shall be designated in the national wetland parks. According to the natural conditions and management needs, the national wetland parks can be divided into restoration and rehabilitation zones, and wise use zones, and be managed according to different zones.

Only the activities regarding the protection, monitoring and scientific research and other necessary activities can be conducted in the conservation zones, where any other activities unrelated to the protection and management of wetland ecosystem are not allowed. The activities related to the conservation and restoration of wetlands should be undertaken in the restoration and rehabilitation zones. The publicity and education activities focusing on ecological display, and popular science education should be undertaken in wise use zones, where the activities of ecological experience and management services that do not damage the wetland ecosystem functions can be

carried out.

The sum of the area of the conservation zones, the restoration and rehabilitation zones and the sum of wetland area shall be greater than 60% of the total area of the wetland park and that of the total wetland area of the wetland park, respectively.

**Article 13** The administrative agencies of national wetland parks shall be responsible for the protection and management of the national wetland parks, formulate and implement the wetland park's master plan and management plan, and improve the wetland park protection and management system.

**Article 14** The national wetland parks shall set up publicity and education facilities, establish and improve the interpretation system, promote the wetland functions and values, disseminate wetland knowledge, and raise the public awareness of wetland conservation.

**Article 15** The administrative agencies of national wetland parks shall regularly organize the survey and dynamic monitoring of wetland resources, create archives, and adopt corresponding protection and management measures according to the monitoring results.

**Article 16** The administrative agencies of national wetland parks shall establish a harmonious community co-management mechanism, and engage local residents in wetland resources management, protection, services and other activities.

## **2.9 Measures for the Sheltering and Rescue of Wild Animals (Excerpts)**

(The Decree No. 47 of the State Forestry Administration on December 1, 2017)

**Article 5** An institution for sheltering and rescuing wild animals shall, according to the requirements of the competent forestry department of the people's government at the same level and the actual needs for sheltering and rescuing wild animals, establish sheltering and rescue premises, and be equipped with corresponding professional technicians, rescue tools, equipment and drugs, among others.

The competent forestry departments of the people's governments at or above the county level and their institutions for the sheltering and rescue of wild animals may, where necessary, organize the organizations and individuals engaged in the scientific research and artificial breeding of wild animals to participate in the sheltering and rescue of wild animals.

**Article 6** The competent forestry departments of the local people's governments at or above the county level shall announce the names, addresses, contact information and other relevant information on the institutions for sheltering and rescuing wild animals.

If any organizations or individuals find that the injured or trapped wild animals need to be sheltered and rescued, they shall promptly report to the local forestry departments and the institutions responsible for wild animals sheltering and rescue.

**Article 7** Under one of the following circumstances, the institutions in charge of wild animals sheltering and rescue shall provide shelter and rescue services for:

(1) the wild animals transferred by law enforcement organs, other organizations and individuals;

(2) the wild animals which have been found injured, sick, hungry, or trapped in the fields and needing rescue, and cannot return to the field environment after simple treatment;

(3) alien wild animals found in the fields that may harm the local ecosystems;

(4) other wild animals needing shelter and rescue.

When the wild animals under state or local key protection are threatened by natural disasters, major environmental pollution accidents and other unexpected incidents, the institutions responsible for wild animal sheltering and rescue shall take emergency rescue measures in a timely manner according to the requirements of the local people's governments.

## **2.10 Circular of the National Forestry and Grassland Administration on Fully Leveraging the Social Functions of Various Types of Natural Protected Areas to Carry out Nature Education (Excerpts)**

### **II. Establish nature education areas open to the general public**

All types of natural protected areas are the areas with the most precious and beautiful natural landscapes, the richest natural resources and the most important ecological status in China. They serve as the important carrier of protecting biodiversity



and maintaining ecological balance. They are also the main form of demonstrating the Scientific Outlook on Development and achieving the harmony between human beings and nature. The natural protected areas with global outstanding values can be designated as the World Natural Heritage or the World Natural and Cultural Heritage by UNESCO. They are the unique advantages that nature education cannot be replaced. The natural protected areas should strictly abide by the relevant provisions, and establish nature education areas for teenagers, educators, special need groups and workers in social groups, without affecting their own tasks in terms of resources protection, and scientific research, according to the functional divisions. The natural protected areas' management departments should designate special persons to be responsible for managing, coordinating, organizing, interpreting for and arranging various types of nature education activities for the general public. Famous experts and scholars are encouraged to give lecture on nature for the general public. The natural protected areas should help build a harmonious relationship between human beings and nature in nature education, without damaging the wildlife, destroying the ecological environment and disturbing the original state of the natural ecosystems in the name of nature education. The natural protected areas are also required to create enabling conditions for the general public to be involved in the building and management of natural protected areas, so that these areas can become an important base to improve the cultural quality of the general public, and promote the concept of ecological civilization.

#### **IV. Enhance the ability of providing services for nature education**

It is important to adhere to the concepts of "being open, voluntary, cooperative, sharing, inclusive and offering service" to strengthen overall planning, draw on collective wisdom, and enhance coordination of services to meet the needs of the general public to experience, perceive and learn from nature. We should focus on key areas such as improving nature education resources on natural protected areas, safeguarding the basic functions of nature education, and enhancing the social benefits of nature education. We should also accelerate the transformation and upgrading of nature education facilities in natural protected areas, and fully enhance the ability of nature education services. We should strengthen the protection of existing forests and vegetation, ancient and famous trees, wild animals, wetlands, and geological relics to diversify the nature education resources. We should also optimize the allocation of nature education resources, and give priority to the development of nature education in the forest and wetland areas featuring favorable forest and vegetation conditions, rich landscape resources, excellent ecological environment and diverse cultural heritages.

#### **VI. Create distinctive nature education brands**

All types of natural protected areas should strengthen the function of nature education, innovate and strengthen the nature education service system, and improve the quality of nature education services. Depending on their own advantages, special activities can be organized with typical and representative contents to create branded

activities with the characteristics of the times and the region. We should strengthen the cultivation of staff in nature education, mobilize and encourage the practitioners in different types of protected areas to be actively engaged in the cause of nature education, select and train a number of talents in nature education. All natural protected areas should use the existing facilities and places to conduct nature education with enterprises, public institutions, social organizations and other entities and create a diversified work model. All protected areas should make full use of social donations to promote the healthy development of nature education. In addition, all protected areas should learn from the international and domestic best practices and effective measures to promote the development of expert team, high quality teaching materials, and volunteer team on nature education, and gradually establish their own nature education system.

## **2.11 Circular of the National Forestry and Grassland Administration on Enhancing the Protection of Migratory Birds in Autumn and Winter (Lin Hu Fa No. 92 [2019] - Excerpts)**

### **II. Implement conservation measures and strictly enforce the law and supervise**

All localities should accurately understand the current status on the migratory bird population and habitat protection within their jurisdiction, and work with the local governments to organize in wild animals are mainly distributed and cluster activity area to carry out special actions, such as patrol, guarding, removing nets, removing traps, removing clamp holders and removing poisonous baits, which are aimed to thoroughly eliminate the security threats to migratory birds. All localities should cooperate with the relevant departments to track down the problems. They should strengthen communication and coordination with the public security, market supervision, customs, border defense, transportation and other departments, and joint check one by one the sites dealing with wild animal artificial breeding and operation and utilization within their jurisdiction for any illegal production and sales of bird nets, and for transport of wild animals and their products; and check the electronic commerce, express logistics and social media for hunting and sales of wild animals and their products.

If any illegal feeding and illegal storage, transportation, delivery and sales of wild migratory birds and products, and sales of illegal hunting tools are found, such cases should be strictly investigated and punished according to law. All localities should earnestly monitor, prevent and control the migratory bird flu and other wild animal epidemic diseases, and increase monitoring and patrol routes to eliminate blind areas in

monitoring. All localities should better perform the responsibilities in monitoring, do a good job in information reporting/submission and be on emergency duty in holidays, pay close attention to and report the abnormal situation of migratory birds and other wild animals in a timely manner to prevent the spread of the epidemic.

#### **IV. Strengthen education and guidance to raise public awareness**

All localities should strongly promote the knowledge and concepts on the protection of migratory birds through various channels and forms. Key villages along the migratory bird's migration and wintering areas are encouraged to develop township regulations so as to resist illegal hunting of migratory birds, and to abandon the bad habits of eating wild animal. The reporting telephone number should be announced, and the reporting and information feedback system should be improved. Public welfare organizations, non-governmental organizations and volunteers and other social actors from all walks of life are encouraged and supported to actively report to the departments in charge of wildlife at all levels the information and cases that cause harm to migratory birds. Full support at multiple levels will be given to volunteer organizations and law enforcement agencies will be assisted to carry out special actions to protect migratory birds, such as removing nets and traps, so as to create a situation in which the whole society is involved in protecting migratory birds, and combating crimes related to wildlife.

## **2.12 Circular of the National Forestry and Grassland Administration on Strengthening the Protection of Wild Animals Including Birds in Autumn and Winter (Lin Hu Fa 2020 No.89 -Excerpts)**

### **II. Implement conservation measures and strictly enforce the law and supervise**

The competent forestry and grassland departments at all levels should earnestly strengthen their responsibility for the protection and supervision of wild animals under their jurisdiction. Under the leadership of the local Party committees and governments, these departments should establish and improve a cross-sectoral coordination mechanism for wildlife protection and law enforcement. They should actively enhance communication and collaboration with various law enforcement departments, intensify law enforcement and supervision in all areas, including protection at sites, artificial breeding, market operation, transportation, posting and delivery, entry and exit, and online trading of these wild animals. These departments should adopt multiple

measures, and conduct joint prevention and control for comprehensive management.

First, the departments should patrol and be on guard in key habitats and main migratory channels of wild animals including birds; thoroughly remove all kinds of bird nets, traps and clamp holders, poisonous baits and other illegal hunting tools; and urge the relevant departments to strengthen the management of fish ponds, shrimp ponds to eliminate the threats of safety to migratory birds' migration and other wild animal populations.

Second, the relevant departments should conduct a comprehensive inventory on the artificial breeding sites of wild animals including birds, check the breeding qualification, type, source and quantity, and ban the illegal breeding and other activities for the purpose of eating; where the breeding is beyond the scope of the administrative license or does not meet the relevant conditions, such activities should be rectified within a time limit, to prevent them from becoming the "shelter" for birds and other wild animals from illegal sources, or becoming the "processing plants" or "transfer stations" for illegally traded birds.

Third, the departments should, in conjunction with the public security, market supervision and other authorities, check the bazaars, distribution centers for related goods or raw materials, restaurants and hotels and other places one by one. They should also work with the network-based supervision agencies to closely monitor the information regarding online illegal trade of birds and other wild animals, resolutely ban and punish illegal trade in birds and other wild animals and sales of bird nets and other illegal hunting tools, to create a legal market and network space.

Fourth, these departments should, in conjunction with the customs, transportation, civil aviation, post and other authorities, intensify the inspection on the actions of importing and exporting, transporting, delivering, and carrying birds and other wild animals. They should remove illegal sale of birds and other wild animals and sale of illegal hunting tools along the roads, or on long-distance transport vehicles, to achieve full coverage of law enforcement and supervision for wildlife protection.

Fifth, the departments should promptly hand over criminal clues discovered in the course of law enforcement inspections and other work to public security authorities, provide professional support in inspection and identification, crack down on the criminal groups who provide illegal one-stop services, and deter other criminal acts.

### **III. Strengthen dynamic monitoring, and regulate sheltering and rescue**

The competent departments of forestry and grassland at all levels should actively leverage the survey teams on wild animal resources, scientific research institutions, bird banding stations and wild animal epidemic sources/diseases monitoring stations to constantly carry out population dynamic monitoring in and along the areas where birds and other wild animals concentrate, key habitats and major migration routes, so as to

further understand the population change of birds and other wild animals, spatio-temporal dynamic changes of their migration and major threats. The departments should study and formulate plans for the protection and restoration of birds and other wild animals and their habitats, and secure financial and personnel support through various sources to ensure these plans can be truly implemented and to create enabling conditions for the survival and reproduction of birds and other wild animals. Efforts should be made to regulate the sheltering and rescue activities of birds and other wild animals, ban the arbitrary feeding of migratory birds in their migration stopover and wintering sites so as to prevent the migratory birds from being stranded or being delayed during their migration process. Where it is actually needed to rescue the wild populations or individuals of birds and other wild animals, and to provide shelter for the birds or other wild animals which have become injured or have been seized by law enforcement agencies, the wildlife protection agencies under their jurisdiction will organize and implement the sheltering and rescue after scientific demonstration or having sought after the expert's advice. It is prohibited to enter the nature reserves for bird watching and bird photographing without authorization. Chasing after bird groups, and interfering with the migration of migratory birds are also banned.

#### **IV. Enhance epidemic diseases prevention and control, and strengthen monitoring and early warning**

The competent forestry and grassland departments at all levels should, in accordance with the policy of "strengthening responsibility, focusing on key issues, implementing policies by different zones, and paying close attention to the implementation", adjust the arrangement in key monitoring areas in a timely manner, depending on the actual conditions of the birds and other wild animals' population distribution and activity patterns, and migration characteristics of migratory birds in the region. The departments should guide and supervise the monitoring sites of wild animals' epidemic diseases to strengthen monitoring and inspection in key risk areas, such as the areas including migratory birds' flyways where wild animals are concentrated, the areas where wild animals are gathered, areas where historical epidemics have occurred, or the surrounding areas under the threat of epidemic diseases.

In the key areas where monitoring sites have not yet been established, staff should be seconded and responsibilities should be clearly defined to well conduct monitoring, prevention, control and early warning on avian influenza and other epidemic sources/diseases, and to ensure that the abnormal situations can be discovered at the first time and handled at the first place. Information on abnormal situations should be reported rapidly and accurately. Where the duties of reporting the epidemics have not been performed, and the reporting of information on abnormal situations has been concealed, falsified, delayed, or omitted, the relevant persons who are involved in these acts shall be investigated for the responsibility according to law.

## **2.13 Circular of the Ministry of Ecology and Environment on Printing and Issuing the Interim Measures for the Supervision of Ecological Environment of the Natural Protected Areas (Huan Sheng Tai (2020) No. 72—Excerpts)**

**Article 3** The Ministry of Ecology and Environment shall be responsible for guiding, organizing and coordinating the supervision of the ecological environment of national protected areas across the country, and implementing key supervision of the ecological environment of natural protected areas at national level.

**Article 4** The competent ecological and environmental departments shall, in accordance with the laws and regulations, announce to the public the supervision results on ecological and environmental conditions of natural protected areas, and be subject to social supervision.

Citizens, legal persons and other organizations are encouraged to be involved in the supervision of the ecological and environmental protection efforts of natural protected areas in accordance with the Measures for the Public Participation in Environmental Protection.

**Article 5** The Ministry of Ecology and Environment shall oversee the implementation of ecological and environmental protection efforts in the plan related to natural protected areas nationwide.

The provincial ecological and environmental departments shall supervise the implementation of ecological and environmental protection efforts in the plan of natural protected areas in their administrative regions.

**Article 8** The Ministry of Ecology and Environment shall regularly organize remote sensing-based monitoring of human activities in natural protected areas at national level, push the problem clues found by remote sensing-based monitoring to the provincial ecological and environmental departments, and copy the problem clues to the competent authority in charge of natural protected areas under the State Council. Provincial ecological and environmental departments shall organize field verification of the problem clues, organize handling of such clues if the problems are found to be true, and report the handling results to the Ministry of Ecology and Environment.

The Ministry of Ecology and Environment shall establish a system covering the problem clues through remote sensing-based monitoring of human activities in natural

protected areas at national level, field verification and handling and rectification “ledgers”.

Provincial ecological and environmental departments shall establish their own systems covering the problem clues through remote sensing-based monitoring of human activities in different types of natural protected areas at different levels, field verification and handling and rectification “ledgers” within their administrative areas.

**Article 9** The Ministry of Ecology and Environment shall organize the assessment on the effectiveness of ecological and environmental protection efforts in natural protected areas at national level, and release the results of the assessment in a unified manner.

In principle, such assessment shall be carried out once every five years. For national natural protected areas with sensitive ecological changes, high disturbance intensity of human activities, and prominent ecological damage, the frequency of assessment can be increased appropriately.

The Ministry of Ecology and Environment shall provide feedback on the results of the assessment to the administrative agencies of the natural protected areas being assessed, with a copy sent to the competent department in charge of natural protected areas under the State Council and to the provincial people's governments where the natural protected areas are located.

The Ministry of Ecology and Environment shall organize the development of the procedures and standards for implementing such assessment.

The provincial ecological and environmental departments shall, by referring to the procedures and relevant standards developed by the Ministry of Ecology and Environment, establish a system for assessing the effectiveness of ecological and environmental protection efforts of local natural protected areas within their administrative regions, and organize such assessment at the local level.

**Article 10** The Ministry of Ecology and Environment shall regularly organize intensive supervision on ecological and environmental conditions in natural protected areas. The following tasks are included:

(1) The Ministry of Ecology and Environment shall organize supervision on the implementation of instructions from China's top leaders on ecological and environmental protection of natural protected areas, as well as the major decisions of the Party Central Committee and the State Council on such topic.

(2) The Ministry of Ecology and Environment shall establish a “ledger” on key ecological and environmental issues in national natural protected areas, push the problem clues of human activities found by remote sensing-based monitoring and other

approaches to the local ecological and environmental departments, and copy such clues to the competent authority in charge of natural protected areas under the State Council.

(3) Provincial ecological and environmental departments shall, by taking into account the actual conditions in the administrative regions, improve the “ledger” on key ecological and environmental issues in national natural protected areas in the administrative regions, organize field verification, and report to the Ministry of Ecology and Environment the results of field verification and rectification.

(4) The Ministry of Ecology and Environment shall organize the supervision on the handling, and rectification of key ecological and environmental issues in the national natural protected areas, as well as ecological restoration and other efforts, urge the rectification, and announce to the public if appropriate.

**Article 14** For the illegal mining, road construction, dam building, construction activities that have caused ecological damage and for the illegal discharge of pollutants in natural protected areas, the law enforcement work shall be conducted in accordance with relevant laws and regulations, as well as the documents and regulations related to comprehensive administrative law enforcement in terms of ecological protection.

Where pollution or damage to natural protected areas has resulted in ecological damage, the ecological and environmental departments shall, in accordance with the relevant provisions, organize or transfer to other relevant departments to organize the compensation work for ecological damage.

## **2.14 Opinions of the National Forestry and Grassland Administration and the Ministry of Science and Technology on Strengthening the Popular Science Education Related to Forestry and Grassland" (Lin Ke Fa (2020) No.29- Excerpts)**

### **III. Main tasks**

#### **(1) Disseminate knowledge of forestry and grassland science**

Scientific research institutions, colleges and universities, open laboratories of enterprise groups, field stations, experimental bases, popular science venues, and state-owned forest farms/pastures and various types of natural protected areas at all levels and other bases related to forestry and grassland science are encouraged to be made available to the general public on a regular basis. Efforts will be made to actively carry



out publicity activities on forestry and grassland science, coordinate the media resources between the central and local, between online and offline, between indoor and outdoor media, to spread the basic knowledge on ecological protection and restoration and strategic emerging industries in forestry and grassland science, and promote the achievements in terms of forestry and grassland science and technology innovation. Various branded events, including Forest Activity, Green China Trip, the National Bird-loving Week, Publicity Month on the Protection of Wild Animals, etc. will be fully leveraged to carry out different kinds of popular science education activities. Some key occasions such as Tree-Planting Day, World Forest Day, World Wetlands Day, World Day to Combat Desertification and Drought, World Wildlife Day, Cultural and Natural Heritages Day, etc., should also be used to organize and carry out social and regular series of popular science education activities.

Various festival activities, such as the World Expo, the Green Expo, the Forest Tourism Festival, and the Bamboo Culture Festival should be used to carry out forestry and grassland science popular education activities. The Week of National Forestry and Grassland Science and Technology Activities will be organized, focusing on the display of new technologies, new products, and new services in this regard. Efforts will be made to carry out youth forestry and grassland science camp, nature education and forest health and wealth and other kinds of extracurricular science practice and experience activities. General colleges and universities, forestry and grassland science-related colleges and universities and other educational institutions are encouraged to carry out such practices for students and faculties. Forestry and grassland science popularization activities are also encouraged to be implemented together with relevant non-governmental organizations.

## **(2) Promote the continuous boom of forestry and grassland science-related works**

Key support will be provided to creation of original books, translations, and articles related to forestry and grassland science. Scientific researchers, popular science education workers and editors are encouraged to jointly create and promote such books. In particular, scientific researchers are encouraged to write articles on forestry and grassland science popularization in response to hot-button social topics and public doubts, and the translation of foreign forestry and grassland science popularization books and articles is encouraged. We will work with domestic well-known news and cultural media, focusing on forestry and grassland-related popular science hot-button topics and special resources to produce popular science feature films, micro videos, documentaries and advertising for public good, etc. We will organize the preparation of ecological knowledge textbooks and forestry and grassland-related popular science books suitable for primary and secondary school students.

According to the actual situation, we will leverage our advantages in terms of region, resources and talents to build bases to demonstrate the production of science education videos. We will support forestry and grassland-related networks to create

popular science works, and built a smooth communication channel between scientists, creative teams and media production to expand influence of these networks in popular science works. Furthermore, we will strengthen the development, integration and sharing of popular science resources, diversify the form and content of popular science, and innovate popular science carriers and platforms, so as to the promote the boom of popular science literature and art creation, and achieve the integrated development of science and art, popular science and culture.

### **(3) Organize various types of forestry and grassland science-related activities**

We will make full use of forestry and grassland popular science-related venues to carry out various forms of indoor activities. Representative suburban forest parks, nature reserves and wildlife parks will be selected to carry out outdoor nature education and experience activities. We will innovate the carriers for popular science activities, bring the role of popular science volunteers into full play, and organize a series of forestry and grassland science-related demonstration activities, such as "Forestry and Grassland Science and Technology Week", "Birds-loving Week", "Interpretation Contest", "Micro Video Contest", "Essays for Awards". We will leverage the functions of popular science function for major scientific and technological infrastructure, laboratories, zoos, botanical gardens, specimen museums, field stations, libraries and other scientific research facilities that can be made available to the general public to an appropriate extent. At the Public Science Day, many activities, such as exhibitions on scientific research achievements, science popularization lectures, science and technology consultation, promotional materials distribution and special films can be carried out.

Under the premise of ensuring the needs of scientific research work, the duration of public science day can be extended. It is also important to improve the facilities and layout in popular science exhibition venues (halls), enrich the interactive contents, and carry out popular science activities on the occasions of holding major scientific events, releasing key scientific research results, and using hot-button social topics. We will carry out forestry and grassland science-related activities such as popular science summer and winter camps for youth. In addition, we will organize lectures on "Scientists Entering Forest and Pastoral Areas", hold regular seminars on forestry and grassland science popularization, hold relevant competitions, and create a social atmosphere in which "everyone loves popular science and everyone loves forests and grasslands".

### **(6) Continue to strengthen popular science exchange and cooperation with Hong Kong, Macao and Taiwan regions and the rest the world**

We will fully mobilize the social groups and non-governmental organizations to promote the integration of forestry and grassland science popularization activities into the development of "the Belt and Road Initiative (BRI)". Using various channels such as hosting or participating in international forums, seminars and photo exhibitions, we

will promote China's brilliant achievements in ecological civilization development, and tell stories well about China's forestry and grassland science popularization. We will make full use of China's international cooperation mechanism and channels to constantly expand the multi-bilateral exchanges and cooperation in the field of forestry and grassland science. We will learn from international best practices in terms of forestry and grassland science, and introduce international outstanding works and science models in this regard. Furthermore, we will strengthen the exchange and cooperation between mainland China and Hong Kong, Macao and Taiwan regions to carry out a variety of forestry and grassland science and technology-related activities, and to encourage "cross-straits" academic exchange and discussions in this regard.

## **3 Regulations and Documents of Provinces and Municipalities Directly under the Central Government**

### **3.1 Regulations of Shanghai Municipality on Environmental Protection**

**Article 15** In organizing the preparation of the municipal and the district master plans and land use overall plans, Shanghai municipal and district people's governments, should, according to the ecological and environmental conditions of each administrative region, designate ecological protection red lines in different areas, such as key ecological function areas (including drinking water source conservation zones, nature reserves, key habitats of wild animals and key wetlands), ecologically and environmentally sensitive and fragile areas, establish an ecological protection red line system, conduct control and strict protection according to different categories and levels.

The preparation of the municipal relevant control-based detailed plans shall be aligned with the control requirements of ecological protection red lines.

**Article 18** The Municipality shall establish and improve the compensation system for ecological protection according to State regulations.

For the areas under ecological protection in the Municipality, the municipal or district people's government shall give economic compensation by means of financial transfer payment and other tools. The municipal development and reform department shall, in conjunction with the relevant administrative departments, establish and improve the eco-compensation mechanism to ensure that the compensation funds are used for ecological protection compensation.

The people's governments in the beneficiary areas and ecological protection areas may make compensation for ecological protection through consultation or in accordance with market rules.

## 3.2 Regulations of Shandong Province on Environmental Protection

(The Regulations of Shandong Province on Environmental Protection was adopted at the 25<sup>th</sup> Meeting of the Standing Committee of the Eighth Session of Shandong Provincial People's Congress on December 14, 1996. Amended in accordance with the Decision on Amending the Regulations of Shandong Province on Environmental Protection at the 24<sup>th</sup> Meeting of the Standing Committee of the Ninth Shandong Provincial People's Congress on December 7, 2001; and revised at the Seventh Meeting of the Standing Committee of the Thirteenth Shandong Provincial People's Congress on November 30, 2018. )

**Article 9** Citizens, legal persons and other organizations shall have the right to know environmental information, participate in and supervise environmental protection efforts in accordance with the law. Citizens should enhance their awareness of environmental protection, practice a green, low-carbon and frugal style of living and consumption, and consciously fulfill their obligations in environmental protection.

**Article 10** Organizations and individuals that have made outstanding achievements in protecting and improving the environment shall be commended and rewarded by the people's government.

**Article 31** When formulating policies and measures for regional development, resource development, urban and rural development and industrial development, the people's governments at or above the county level shall take into full consideration the impact on the ecological environment and the carrying capacity of environmental resources to ensure that the reform and development decisions are coordinated, linked with and adapted to the protection of environmental resources.

**Article 32** The people's governments at or above the county level and the relevant departments thereof shall take measures such as financial subsidies, incentives and support to encourage and support the conversion of farmland to forests, the protection and restoration of rivers, lakes and wetlands, actively carry out land greening and soil and water conservation, improve the carrying capacity of environmental resources, and protect and improve the ecological environment.

**Article 35** The provincial people's government shall, according to the ecological environment conditions, delineate ecological protection red lines in key ecological functional areas, ecologically sensitive areas and fragile areas, clearly define the areas and activities where development is banned or restricted, and formulate strict measures for environmental protection.

**Article 37** The representative natural ecosystem areas, natural distribution areas for wild animals and plants, important water conservation areas, concentrated areas of natural resources and cultural landscapes, and other areas requiring special protection shall be strictly protected by designating nature reserves, scenic and historic areas, forest parks, geo-parks, key water sources and important wetlands.

**Article 38** The people's governments of coastal areas at different levels shall strengthen marine ecological protection, reasonably determine the offshore aquaculture density according to the areas demarcated by marine functional zonation, strictly implement the fishing ban and fishing moratorium system, actively proliferate and release aquatic organisms and construct artificial reefs and marine pastures, build coastline protective facilities and coastal shelter forests, and adopt comprehensive control measures to prevent coastal erosion and seawater intrusion.

**Article 39** For areas with outstanding environmental problems such as illegal land reclamation from sea, mining subsidence, open-pit tailings and industrial waste residue yards, the relevant people's governments shall take comprehensive remediation measures, such as restoration to the original state, reclamation and consolidation, and building of artificial wetlands. They shall urge the relevant responsible entities or individuals to complete ecological restoration within a time limit, and announce to the public the remediation measures and results.

**Article 42** The people's governments at or above the county level shall promote the protection and restoration of ecosystems, build ecological corridors and biodiversity conservation networks, take measures such as vegetation restoration, water conservation and improvement of animal and plant habitats to strengthen the protection of wild animals and plants, prevent the introduction of invasive alien species, enhance the stability of ecosystems and maintain ecological security.

**Article 65** The news media shall actively disseminate the laws and regulations on ecological and environmental protection and related knowledge, publicize excellent models, and supervise against illegal environmental acts through public opinion.

### 3.3 Measures for the Conservation of Wetlands in Shandong Province

(Adopted at the 136th Executive Meeting of Shandong Provincial Government on January 28, 2012, which shall come into force as of March 1, 2013)

**Article 8** The competent forestry departments of the people's governments at or above the county level shall, in conjunction with the relevant departments, work out the wetland conservation plan for their respective administrative areas, which shall be submitted to the people's government at the corresponding level for approval before implementation.

The wetland conservation plan shall specify the objectives and tasks of wetland conservation, safeguard measures, areas where development and construction are prohibited, areas where development and construction are restricted, and methods of wetland utilization, protection and restoration.

**Article 9** The wetland conservation plan shall be scientifically and reasonably prepared based on the wetland type, protection scope, ecological functions, water resources, wildlife resources, etc. It shall be integrated with other plans in terms of overall land use, environmental protection, urban and rural development, water resources, marine functional zoning, etc.

In preparing the wetland conservation plan, the opinions of relevant organizations, experts and the general public should be widely solicited through demonstration meetings, hearings and other forms.

**Article 14** Wetland parks shall be managed by zones. According to the actual needs of wetland conservation, the wetland parks can be divided into wetland conservation zones, restoration and rehabilitation zones, education and display zones, zones for wise use and management service zones, etc.

In the wetland conservation zones and the restoration and rehabilitation zones, except the necessary activities such as wetland resource protection, monitoring, cultivation and restoration, no other activities unrelated to the protection and management of wetland ecosystems are allowed to be carried out.

In the education and display zones, zones for wise use and management service zones, appropriate ecological display, popular science education, eco-tourism and other activities can be carried out, without damaging the basic functions of the wetland ecosystem.

**Article 20** The people's governments at or above the county level shall, in accordance with the wetland conservation plan, carry out scientific assessment on the degraded and destroyed wetlands, and adopt comprehensive restoration measures, such as habitat creation, vegetation restoration, returning farmlands (reclaimed lands) to wetlands, enclosure and grazing restriction, pollution control, biological prevention and control, etc.

**Article 21** The people's governments at or above the county level shall take measures to protect the ecological water use of wetlands. For natural wetlands whose functions are degraded due to lack of water resources, engineering and technical measures shall be taken to replenish water and maintain the ecological functions of wetlands.

The people's governments at or above the county level shall encourage the overall planning of water conservancy projects construction and wetland conservation, flood control and water storage, biological environmental protection and wetland utilization and other resources sharing. In formulating water resources development and utilization plans and dispatching water resources, the competent water resources and other relevant departments shall maintain reasonable water levels in rivers, lakes and reservoirs and maintain the capacity of water bodies in natural purification.



### **3.4 Measures of Shandong Province for Implementing the Law of the People's Republic of China on the Protection of Wildlife**

(Adopted at the 25th Meeting of the Standing Committee of the Seventh Shandong Provincial People's Congress on December 20, 1991

Amended for the first time according to the “Decisions on Modifying the 20 Local Regulations Including Some Provisions on the Work of Town /Township People's Congresses in Shandong Province” at the 19th Meeting of the Standing Committee of the Eleventh Shandong Provincial People's Congress on September 29, 2010

Amended for the second time according to the "Decisions on Modifying the 12 Local Regulations Including the Regulations of Shandong Province on Renewable Energy in Rural Areas" at the 15th Meeting of the Standing Committee of the Twelfth Shandong Provincial People's Congress on July 24, 2015

Amended for the third time according to the “Decisions on Modifying the 14 Local Regulations Including the Regulations on the Prevention and Control of Motor Vehicle Exhaust Pollution in Shandong Province” at the 35th Meeting of the Standing Committee of the Twelfth Shandong Provincial People's Congress on January 23, 2018.)

**Article 4** Wild animal resources belong to the State.

The legitimate rights and interests of organizations and individuals engaged in scientific research and artificial breeding of wild animals and other related activities according to law shall be protected by law.

**Article 5** The people's governments at or above the county level shall incorporate the protection of wild animal resources into the national economic and social development plan. The funds needed for the protection of wild animal resources shall be provided by the finance at the same level.

**Article 14** It is forbidden to discharge industrial sewage and waste gas exceeding the standard, accumulate industrial waste residues, dump domestic garbage and use

toxic and harmful drugs in the main living and breeding places of wild animals under the State and provincial key protection.

**Article 15** The local people's government shall make compensation for crops or other losses caused by the protection of wild animals under the State and provincial key protection. Compensation measures shall be formulated by the provincial people's government.

**Article 30** Anyone who, in violation of the provisions of the Measures, destroys the dens and nests of wild animals or damages the main places where the wild animals under the State or provincial key protection live and breed in nature reserves and game reserves shall be ordered by the wildlife administrative department to stop their destructive behaviors, restore to the original state within a time limit, and be fined 100 to 3,000 yuan.

## **3.5 Regulations of Shandong Province on Marine Environmental Protection**

(Adopted at the 10th Meeting of the Standing Committee of the Tenth Shandong Provincial People's Congress on September 23, 2004

Amended for the first time according to the “Decisions on Modifying 25 Local Regulations including the Regulations of Shandong Province on the Prevention and Control of Environmental Noise Pollution” at the 28th Meeting of the Standing Committee of the Eleventh Shandong Provincial People's Congress on January 13, 2012

Amended for the second time according to the "Decisions on Modifying nine Local Regulations Including the Regulations on Marine Environmental Protection in Shandong Province” at the 20th Meeting of the Standing Committee of the Twelfth Shandong Provincial People's Congress on March 30, 2016,

Amended for the third time according to the "Decisions on Modifying Four Local Regulations Including the Regulations on the Prevention and Control of Atmospheric Pollution in Shandong Province” at the 7th Meeting of the Standing Committee of the

Thirteenth Shandong Provincial People's Congress on November 30, 2018)

**Article 4** The people's governments of coastal areas at different levels shall, in accordance with the ecological protection red lines delineated according to law, strictly protect sea areas, such as key marine ecological functional areas, ecologically and environmentally sensitive areas and fragile areas.

**Article 5** The people's governments of coastal areas at or above the county level shall establish and improve the bay chief system to achieve full coverage of key sea areas in the region.

Bay chiefs at all levels shall, according to different levels and areas, organize, coordinate and supervise the management and control of marine spatial resources, integrated prevention and control of pollution, ecological protection and restoration, and environmental risk prevention, so as to improve the of marine ecological/environmental quality and maintain marine eco-security.

**Article 14** The development and utilization of marine resources shall strictly abide by the ecological protection red line, comply with the plans in terms of marine main functional areas, marine functional zonation, marine environmental protection, special plan for environmental protection of key sea areas and relevant environmental protection standards, and shall not cause damage to the marine ecological environment.

No organization or individual is allowed to build any engineering construction projects in semi-closed bays and estuaries that may affect tidal channels and flood discharge, reduce water exchange capacity and increase the sedimentation rate of the channels.

When excavating sea sand and gravel or developing the resources of the islands and the surrounding sea areas, strict ecological protection measures shall be taken, and the ecological environment of the island's topography, beaches and the surrounding sea areas shall not be changed without authorization.

## 3.6 Regulations of Hebei Province on Ecological Environmental Protection

**Article 9** The people's governments at all levels and relevant departments shall strengthen the publicity of ecological environmental protection, and encourage mass autonomous organizations at the grass-roots level, social organizations and ecological environment protection volunteers to carry out the publicity of laws and regulations and knowledge related to ecological environment protection, so as to create a good atmosphere for ecological environmental protection.

The education administrative departments and the schools shall include the knowledge of ecological environmental protection into the school education, and cultivate the students' awareness of ecological environmental protection.

Education and training institutions for government officials shall take laws and regulations and knowledge related to ecological environmental protection as an important part of education and training for government officials, and raise the awareness of State functionaries on ecological environmental protection.

Newspapers, television, radio, Internet and other media shall carry out the publicity of laws and regulations and knowledge related to ecological environmental protection, commend the organizations/individuals who have made outstanding contributions to ecological environmental protection, and supervise against environmental violations through public opinions.

**Article 24** The provincial people's government shall define the red line of ecological protection, the baseline of environmental quality, and the upper limit of resources use, formulate and implement the list of ecological environment access, and develop the system of controlling ecological environment by zones.

The provincial people's government shall organize relevant departments or entrust professional agencies to conduct survey on and assess the ecological and environmental conditions, establish a monitoring and early warning mechanism for the environmental resources carrying capacity, and implement early warning and differentiated, restrictive measures for areas where resource consumption and environmental capacity are close to or exceed the carrying capacity.

**Article 25** In developing and using the natural resources, we shall rationally develop, protect biodiversity and ensure eco-security, formulate and implement ecological protection, restoration and management plans in accordance with the law.

The people's governments at or above the county level shall establish and improve the ecological restoration system, and implement ecological environmental control and protection projects according to local conditions. They shall implement the projects of returning farmlands to forests, grasslands, rivers (lakes), and wetlands, conduct rotational and no farming and grazing, and implement afforestation and soil and water conservation in accordance with the laws and regulations so as to protect and improve the ecological environment.

The people's governments at all levels shall develop a biodiversity conservation system. In accordance with the provisions of the State and the Province, hunting, killing, trading, transporting, processing and eating terrestrial wild animals are completely banned. Wild plants and their growing environment shall be protected, and any organization or individual is prohibited from illegally harvesting wild plants or damaging their growing environment.

It is necessary to strengthen biosafety management, prevent alien invasive biological species from entering the province, and take measures against such species to prevent their spread. In the research, development and utilization of biotechnologies, measures shall be taken to prevent the destruction to biodiversity.

## **3.7 Regulations of Hebei Province on Wetland Protection**

**Article 8** The people's governments at or above the county level shall support scientific research on wetland protection, promote application of scientific research outcomes, and improve wetland protection and management both scientifically and technologically.

The people's governments at all levels, relevant departments and news media shall organize wetland protection publicity and education, popularize wetland protection laws, regulations, and scientific knowledge, and raise the social awareness of wetland protection.

**Article 9** Wetland protection is a social and public welfare undertaking. Citizens, legal persons and other organizations are encouraged to participate in wetland protection by providing service or donations, etc.

Citizens, legal persons and other organizations shall have the responsibility to protect wetland resources and have the right to complain about and report damages to wetland resources.

**Article 11** The competent departments of forestry administration under the people's governments at or above the county level shall, in conjunction with the relevant departments of the governments at the same level, formulate a wetland protection plan for the areas under their jurisdiction according to the wetland protection plan issued by the people's government at the next higher level, and submit it to the people's government at the same level for approval before being published for implementation.

If the wetland protection plan should be adjusted or modified, it shall be submitted for approval by following the procedure prescribed in the preceding sentence.

The wetland protection plan shall be linked to the overall land use plan and coordinated with urban and rural plan, marine functional zoning, water resource plan and tourism development plan, etc.. Opinions shall be acquired through demonstration meetings and hearings, etc. for that purpose.

**Article 13** Establishing an ecological red line system for wetlands.

The people's governments at or above the county level shall make an ecological red line for wetlands scientifically and reasonably and maintain it strictly in order not to lower the ecological functions, decrease the area and change the nature of the wetlands.

**Article 17** The people's governments at or above the county level shall make protection signs for the wetlands included in the wetland protection list, indicating the wetland name, type, protection level, protection scope, administrative department and contact means, etc.

**Article 22** A provincial wetland park may be established for a wetland with an area of 20 hectares or more if the wetland:

(1) has beautiful natural landscape and major functions or historical and cultural values as a wetland;

(2) has a typical wetland ecosystem and is demonstrative or important in the province;

(3) is rich in biodiversity and has important or special scientific research, publicity and education value.

To establish a provincial wetland park, the local people's government at a county level shall apply to the competent department of forestry in the provincial people's government. The latter shall solicit relevant departments for their opinions, organize relevant experts to conduct demonstrations, and approve those qualified.

**Article 29** The following activities are forbidden in wetlands:

(1) Occupying, reclaiming, filling in or draining the wetlands without authorization;

(2) Using or intercepting water sources of the wetlands without authorization;

(3) Destroying the migratory channel of aquatic animals or the habitat of wild animals;

(4) Excavating sand and soil without authorization;

(5) Discharging pollutants illegally to the wetlands;

(6) Picking bird eggs and hunting wild animals;

(7) Introducing alien species without authorization;

(8) Destroying or moving wetland landmarks, fences, nets and other protection facilities;

(9) Other activities that may destroy wetlands and their ecological functions or change the purpose of wetlands.

**Article 42** Anyone who occupies, reclaims, fills in or drains wetlands without authorization in violation of these Regulations shall be ordered by the administrative department of wetland protection in the people's government at or above the county level to make remedies and restore the wetlands to the original state within a prescribed period of time, and pay a penalty more than 150 yuan but less than 300 yuan per square meter.

Anyone who uses or intercepts the water sources of wetlands, destroys the migratory channel of aquatic animals or the habitat of wild animals without authorization in violation of these Regulations shall be ordered by the administrative department of wetland protection in the people's government at or above the county level to make remedies and restore the wetlands to the original state within a prescribed period of time, and pay a penalty more than 5,000 yuan but less than 10,000 yuan.

**Article 45** Anyone who picks bird eggs, introduces alien species without authorization, destroys or moves wetland landmarks, fences, nets or other protection facilities in violation of these Regulations shall be ordered by the administrative department of wetland protection in the people's government at or above the county level to make remedies within a prescribed period of time, and pay a penalty more than 500 yuan but less than 1,000 yuan.

## **3.8 Regulations of Hebei Province on Protection of Terrestrial Wild Animals**

(Adopted at the Fifth Meeting of the Standing Committee of the Eighth People's Congress of Hebei Province on December 22, 1993;

Amended for the first time according to the decisions adopted at the 18th Meeting of the Standing Committee of the Tenth People's Congress of Hebei Province on November 25, 2005;

Amended for the second time according to the Decisions on Modifying 8 Regulations Including the Regulations on Supervision and Administration of Iodine Added to Salt and Elimination of Iodine Deficiency in Hebei Province at the 16th Meeting of the Standing Committee of the Twelfth People's Congress of Hebei Province on July 24, 2015;

Amended for the third time according to the Decision on Modifying 10 Regulations Including the Measures of Hebei Province on Implementing the Water Law of the People's Republic of China at the 23rd Meeting of the Standing Committee of the Twelfth People's Congress of Hebei Province on September 22, 2016;

Amended for the fourth time according to the Decisions on Amending Some



Regulations at the third Meeting of the Standing Committee of the Thirteenth People's Congress of Hebei Province on May 31, 2018)

**Article 5** Wild animal resources shall belong to the state. Hunting and killing of terrestrial wild animals under key protection at a national or provincial level is prohibited. All organizations and citizens have the obligation to protect wild animal resources, and have the right to report and prosecute any embezzlement of or damage to wild animal resources.

**Article 7** The people's governments at or above the county level shall make a financial budget exclusively for protection and management of terrestrial wild animals.

**Article 8** The people's governments shall strengthen publicity and education for protection of wild animals, raise citizens' awareness of wild animal protection, and form a social fashion of wild animal protection. The news media shall take publicity and education on protection of wild animals as their social responsibility and provide excellent service for publicity.

**Article 13** No production projects shall be constructed in the core zones and buildings of nature reserves. In the experimental zones of nature reserves, no production project that pollutes the environment or destroys terrestrial wild animal resources shall be constructed; the pollution discharge of other projects shall not exceed the national or provincial standard. Projects constructed in the protected zones shall not impair the environmental quality of the nature reserves; if any damage has been caused, it shall be rectified within a prescribed period of time. Activities such as logging, grazing, hunting, fishing, herb collection, reclamation, burning, mining, quarrying, sand digging, etc. that may prevent survival and reproduction of terrestrial wild animals shall be prohibited.

**Article 14** Development, utilization of natural resources or construction of engineering facilities in the areas where terrestrial wild animals live and reproduce shall not destroy the ecological functions. If construction of projects in, or development or utilization of the areas where terrestrial wild animals live and reproduce has an adverse impact on the living environment of terrestrial wild animals, an environmental impact assessment report shall be submitted; before approving it, the environmental protection department may solicit the competent departments of terrestrial wildlife administration under the people's governments at the same level for their opinions. If projects that have been completed, or land use or other development activities have an adverse impact on the living environment of terrestrial wild animals under key protection at a national or provincial level, the competent departments for terrestrial wildlife administration

under the people's governments at or above the county level have the right to make remedies within a prescribed period of time.

**Article 35** If anyone illegally hunts or kills terrestrial wild animals under key protection at a provincial level, the people's government at or above the county level shall confiscate the hunting tools and illegal gains, revoke the permit for prey, and give a penalty less than ten times the value of the preys if any, or less than 1,000,000 yuan if there is no prey.

**Article 38** Anyone who destroys the areas where terrestrial wild animals live and reproduce shall be ordered by the competent department of terrestrial wildlife administration under the people's governments at or above the county level to stop such destruction, restore the site to the original state within a prescribed period of time, and pay a penalty less than three times the cost of restoration to the original state if the areas where terrestrial wild animals live and reproduce under key protection at a national or provincial level have been destroyed, or less than two times of restoration to the original state if the areas where terrestrial wild animals live and reproduce not under key protection at a national or provincial level have been destroyed. If restoration to the original state fails to be made even when such order has been given, the competent departments for terrestrial wildlife administration under the people's governments at or above the county level shall recover the cost and restore the site to the original state.

## 3.9 Regulations of Hebei Province on Wetland Protection

**Article 5** A management system of comprehensive coordination and sub-sectoral implementation shall be followed for wetland protection.

The competent departments of forestry administration under the people's governments at or above the county level shall be responsible to organize, coordinate, direct and supervise wetland protection.

The departments of land and resources, environmental protection, water administration, agriculture, housing and urban-rural construction, ocean, and transportation under the people's governments at or above the county level shall be responsible for management of wetland protection according to the division of their

responsibilities; the departments of development and reform, finance, and tourism, etc. shall maintain wetland protection and management.

**Article 6** The people's governments at or above the county level and the relevant departments shall strengthen publicity, education and training on wetland protection, and carry out publicity and education activities in conjunction with the events of World Wetlands Day, Bird-loving Week and Wildlife Protection Publicity Month in order to raise the public awareness of the protection of wildlife.

Citizens, legal persons and other organizations are encouraged to participate in wetland protection by providing service or donations, etc.

**Article 21** The following activities are forbidden in wetlands:

- (1) Occupying, reclaiming, filling in, draining, or changing the purpose of, wetlands without authorization;
- (2) Excavating sand (stone), soil and minerals without authorization;
- (3) Overgrazing and overfishing;
- (4) Destroying the migratory channel of aquatic animals or the habitat of wild animals;
- (5) Destroying or moving landmarks;
- (6) Other behaviors that damage wetlands and their ecological functions.

**Article 23:** The departments of forestry, land and resources, environmental protection, water administration, agriculture, housing and urban-rural construction and ocean, etc. under the people's government at or above the county level shall monitor the natural conditions and affected factors of wetlands, and if finding those that exist or may decrease the area of wetland or degrade the ecological function, shall formulate a corresponding wetland protection plan, and take measures such as restoring farmland to wetland, replenishing water, restricting graze, resettlement and pest control to protect and restore the wetland.

**Article 27** The departments of forestry, land and resources, environmental protection, water administration, agriculture, housing and urban-rural construction, ocean and transportation, etc. under the people's government at or above the county level shall supervise and inspect the protection and utilization of wetland resources according to the division of responsibilities, establish and perfect a reporting system,

and make public the reporting phone number and mailbox. Reports that are accepted shall be investigated and handled duly according to law, and the informants shall be notified of the result.

### **3.10 Regulations of Liaoning Province on Wetland Conservation**

(Adopted at the 32nd Meeting of the Standing Committee of the Tenth People's Congress of Liaoning Province on July 27, 2007)

**Article 5** The people's governments at or above the county level shall strengthen publicity and education of wetland protection, raise citizens' awareness of wetland protection, and give commendations and rewards to organizations and individuals that have made great contributions to wetland protection.

**Article 8** The people's government at or above the county level shall take measures to encourage and support restoration of farmland to wetland and restoration and reconstruction of degraded wetlands, and when formulating a plan for water resource utilization, shall consider the ecological demand of wetlands for water. For natural wetlands whose functions are degraded due to lack of water, the ecological functions of wetlands shall be restored by taking various measures, e.g. water replenishment.

**Article 14** The provincial people's governments shall have landmarks of protection established for important wetlands in the provinces under their respective jurisdiction, and the municipal people's governments for common wetlands. The landmarks shall indicate the wetland type, protection level and scope, etc.

No organization or individual shall destroy or change the landmarks for wetland protection without authorization.

**Article 18** Production, operation or eco-tourism activities in wetlands shall be in compliance with the wetland protection plan and maintain the sustainability of wetland resources, but shall not affect the basic functions of the wetland ecosystem, nor go beyond the regeneration capacity of wetland resources, nor cause destructive damages to wild animal and plant species.

It is forbidden to destroy the habitat environment of wild animals and the growing environment of wild plants.

**Article 20** Production, operation or eco-tourism activities in marsh wetlands shall be approved by the competent municipal department of forestry administration and filed to the competent provincial department of forestry administration, and shall be approved by the competent provincial department of forestry administration for important provincial wetlands.

Grazing, cutting reeds, and cutting grass in marsh wetlands shall be allowed in the scope as approved and shall be in compliance with relevant regulations.

### **3.11 Measures of Liaoning Province on Marine Environment Protection**

(Promulgated by Decree No. 195 of Liaoning Provincial People's Government on July 4, 2006;

Amended for the first time according to the Decisions of Liaoning Provincial People's Government on Abolishing and Modifying Some Regulations of the Provincial Government adopted at the 46th Executive Meeting of the Twelfth People's Government of Liaoning Province on June 14, 2015;

Amended for the second time according to the Decisions of Liaoning Provincial People's Government on Modifying Some Regulations of the Provincial Government adopted at the 134th Executive Meeting of the Twelfth People's Government of Liaoning Province on August 16, 2017;

Amended for the third time according to the Decisions of Liaoning Provincial People's Government on Modifying the Measures of Liaoning Province on Marine Environment Protection adopted at the 14th Executive Meeting of the Thirteenth People's Government of Liaoning Province on July 18, 2018)

**Article 4** Development and utilization of marine resources shall be rationally arranged according to the provincial plan for main marine functional zones, marine functional zoning and plan for marine environmental protection, and shall be in compliance with the regulations on the red line and compensation system for marine

ecological protection and marine protected areas.

The provincial people's government shall make an ecological red line for and protect key marine ecological functional areas, ecological environment sensitive areas and fragile areas such as estuaries, coastal wetlands, natural shorelines, sandy shorelines and fishery waters, etc. The conclusion and adjustment of the ecological red line shall be in accordance with the relevant national regulations.

**Article 14** Special marine protected areas may be established in the areas with special geographical conditions, ecosystems, biological and non-biological resources, and special requirements for marine development and utilization.

The measures on selection, construction and management of special marine protected areas shall be formulated by the provincial department of marine environmental protection in accordance with relevant national regulations and submitted to the provincial people's government for approval.

**Article 15** The people's governments at or above the county level along the coast shall take measures to strengthen protection of the following areas:

- (1) The coastal wetland at the estuary of the Yalu River;**
- (2) Changshan Islands and their coastal waters;**
- (3) The coastal waters of the Laotie Mountain;**
- (4) Changxing Island and its coastal waters;
- (5) The coastal waters of Bayuquan;
- (6) The coastal wetland at the estuary of the Shuangtaizi River;**
- (7) The waters at Dabijia Hill and Xiaobijia Hill;
- (8) The coastal wetland at the estuary of the Daling River;
- (9) The coastal waters of Suizhong;

(10) Marine nature reserves, special marine protected areas and other areas that need special protection approved according to law.

**Article 17** For marine aquaculture, aquaculture areas shall be selected in light of marine functional zoning; the aquaculture density shall be determined scientifically; feeding and fertilization shall be made reasonably. Aquaculture drugs shall be in

compliance with the national and provincial regulations and standards on safe use of pesticides and veterinary drugs to prevent pollution to the marine environment.

**Article 23** In marine nature reserves, special marine protected areas, important fishery waters, salt field reserves, coastal scenic spots, bathing beaches, and other areas that need special protection, no new sewage outlet into the sea shall be built. Local Regulations and Documents on Protected Areas

## **4 Regulations and Documents of Local-level Protected Areas**

### **4.1 Shanghai**

#### **4.1.1 Measures for Administration of Dongtan Bird Nature Reserve, Chongming, Shanghai (2015 Amendment)**

(Promulgated by Decree No. 2 of Shanghai Municipal People's Government on April 3, 2003;

Amended for the first time according to Decree No. 52 of Shanghai Municipal People's Government on December 20, 2010: Decisions of Shanghai Municipal People's Government on Modifying 148 Regulations of the Municipal People's Government Including the Interim Regulations of Shanghai Municipality on Handling Agricultural Machinery Accidents;

Amended for the second time according to Decree No. 30 of Shanghai Municipal People's Government on May 22, 2015: Decisions of Shanghai Municipal People's Government on Modifying 18 Regulations of the Municipal People's Government Including the Regulations of Shanghai Municipality on Salt Industry Management)

#### **Article 5 (Protection Principle)**

The construction and management of protected areas shall be intended to protect birds and the natural environment on which they depend, conduct scientific planning, zoning control, and dynamic protection, and properly handle the relationship with local economic construction and residents' production and life.

#### **Article 6 (Planning for Protected Areas)**

According to the status of bird resources and natural environment and the needs for protection, the municipal administrative department of the nature reserve shall, in conjunction with the People's Government of Chongming District and relevant administrative departments, formulate a protected area construction and development plan and organize environmental impact assessment, which shall be included into the municipal economic and social development plan after being reviewed by the planning department, and implemented after being approved by the municipal people's government.



The reserve management office shall formulate an annual control plan for protected areas related to bird resources and natural environmental protection, which shall be implemented after being approved by the municipal administrative department of the nature reserve, and filed to the municipal administrative department of environmental protection.

#### **Article 10 (Management of Core Zones and Buffer zones)**

No production facilities shall be built in the core zones and buffer zones.

Nobody shall be allowed to enter the core zones. Where scientific studies, observations and surveys thereto are necessary for scientific research, the individuals concerned shall submit the applications and activity plans to the administrative agencies of the nature reserve in advance, and shall be approved by the competent municipal administrative department of nature reserve.

Tourism, production and trading activities are prohibited in the buffer zones. In case the non-destructive activities, such as scientific research, teaching practice and specimen collection, need to be conducted for teaching or scientific research purposes in buffer zones, applications and activity plans shall be submitted to the administrative agencies of the nature reserve in advance, and be approved by the said agencies.

#### **Article 11 (Management of Experimental Zones)**

It is forbidden to build production facilities that may cause environmental pollution or damage the natural resources in the experimental zones. For other projects to be built in these zones, discharge of pollutants shall not exceed the relevant standards prescribed by the state and this city. If the discharge of pollutants by the facilities that have been built in the experimental zones of the nature reserve has exceeded the national and municipal discharge standards, it shall be rectified within a prescribed period of time. Remedies shall be made for the damage caused.

As for the visiting, sightseeing and tourist activities in the experimental zones, the administrative agencies of the nature reserve shall prepare a proposal, which shall meet the administrative objectives of the nature reserve. Visiting and sightseeing activities in the nature reserve shall be conducted according to the proposal approved, and the management of such activities shall be strengthened. All organizations and individuals who enter the nature reserve for visiting or sightseeing shall be subject to the management by the administrative agency of the nature reserve.

The visiting and sightseeing activities that are not aligned with the protection guidelines of the nature reserve shall be prohibited.

### **4.1.2 Regulations of Shanghai Chongming on Game Reserves**

(Promulgated by Decree No. 2 of Shanghai Municipal People's Government on April 3, 2018)

**Article 4 (Scope and Objects of Hunting Prohibition)** The determination and adjustment of the territory covered by hunting prohibition shall be proposed by the administrative agency of Chongming District for protection of wild animals according to the actual needs of wildlife protection, and shall be published after being approved by the People's Government of Chongming District. The term “wildlife” mentioned in these regulations refer to the following terrestrial wild animals:

(1) Those included in the list of wild animals under national and municipal key protection;

(2) Those included in the list of terrestrial wild animals with important ecological, scientific and social values;

(3) Other terrestrial wild animals that need to be protected according to scientific assessment and announced by the People's Government of Chongming District.

**Article 5 (No-Hunting and Patrolling System)** The no-hunting and patrolling system for wild animals shall be implemented in the no-hunting areas. The competent department of Chongming District for wildlife administration shall, in conjunction with relevant departments, formulate a patrol plan for no-hunting areas and submit it to the People's Government of Chongming District for approval. The patrol plan for no-hunting areas shall specify the participating departments, responsibilities, individual participants, patrolling frequency, key patrol areas, and specific measures, etc. The competent department of Chongming District for wildlife administration and the people's governments of townships (towns) shall organize professional teams to patrol the no-hunting areas according to the patrol plan. Relevant organizations and individuals shall assist in the course of patrol. The organizations responsible to maintain public welfare forests and commercial forests in no-hunting areas shall designate personnel to patrol such areas and make patrol records. If finding illegal hunting of wild animals, the responsible organizations shall stop it and promptly report to the competent department of Chongming District for wildlife administration or the administrative agency on wildlife protection.

**Article 13 (Joint pledges)** Residents' committees, villagers' committees and other organizations are encouraged to guide residents and villagers to comply with the management requirements of no-hunting areas in the form of joint pledges among residents and villagers, etc..

**Article 14 (Public Participation)** Volunteer organizations and individuals are

encouraged and supported to participate in hunting prohibition and protection of wild animals in the no-hunting areas according to law. The competent department of Chongming District for wildlife administration shall establish a communication mechanism to receive opinions and suggestions from volunteer organizations, individuals and the public on hunting prohibition, protection and management of wildlife in the no-hunting areas.

## **4.2 Dongying**

### **4.2.1 Regulations of Dongying City on Wetland Conservation**

(Adopted at the 14th Meeting of the Standing Committee of the Eighth People's Congress of Dongying City on October 26, 2018

Approved at the 7th Meeting of the Standing Committee of the 13th People's Congress of Shandong Province on November 30, 2018

Amended according to the Decisions of the Standing Committee of the People's Congress of Dongying City on Modifying the Regulations of Dongying City on Wetland Protection adopted at the 28th Meeting of the Standing Committee of the Eighth People's Congress of Dongying City on September 3, 2020 and approved at the 23rd Meeting of the Standing Committee of the 13th People's Congress of Shandong Province on September 25, 2020)

**Article 6** The competent departments of forestry shall be responsible to organize, coordinate, guide and supervise wetland protection.

Departments of wetland protection administration, e.g. for forestry, water (hydraulic engineering), ocean, and urban management (comprehensive law enforcement) shall be responsible for protection and management of wetlands based on their respective duties.

Other relevant departments shall maintain wetland protection based on their respective duties.

**Article 7** The Municipal People's Government shall establish an expert committee of wetland protection to provide consultation when preparing wetland protection plans, identifying important wetlands, determining wetland protection territories, formulating wetland protection programs, evaluating wetland resources, implementing wetland

restoration, and conducting activities in the wetland protection territories, e.g. construction, development and utilization.

**Article 8** The people's governments at all levels and relevant departments shall enhance wetland protection publicity and education, and raise the social awareness of wetland protection with the help of wetland publicity and education venues, wetland forums, and popular science lectures, etc.

The news media shall intensify publicity of Dongying as an international wetland city, conduct public opinion supervision on destruction of wetlands, and create a favorable atmosphere of wetland protection.

The competent department of forestry administration shall organize scientific research on wetland protection, apply and popularize the research outcomes, and improve wetland protection.

**Article 10** The competent municipal department of forestry shall, in conjunction with relevant departments, formulate a municipal wetland protection plan, which shall be published and implemented after being approved by the municipal people's government.

In accordance with the municipal wetland protection plan, the forestry departments of counties (districts) shall, in conjunction with relevant departments, formulate a wetland protection plan for the areas under their respective jurisdiction, which shall be published and implemented after being approved by the people's government at the same level, and shall be filed to the competent municipal department of forestry.

**Article 14** The people's governments of cities, counties and districts and relevant departments shall implement wetland protection plans strictly, and shall not approve construction projects or conduct other development and construction activities in violation of such plans.

Where relevant departments prepare special plans related to wetlands, they shall solicit the competent department of forestry administration at the same level for its opinions.

**Article 17** The competent forestry administration departments of counties (districts) where wetlands are located shall set up protection signs on the wetlands. The style of protection signs shall be uniformly designed by the competent municipal department of forestry administration.

The organization in charge of wetland management and protection shall set up landmarks on important wetlands to specify the scope of protection.

**Article 26** According to the wetland protection plan, the people's governments of cities, counties and districts shall evaluate the important wetlands scientifically that have been degraded and/or destroyed, and restore them both naturally and artificially through water supply, restoration of farmland (reclamation) to wetland, restoration of farm to mud flat, afforestation, no-grazing, pollution source control and other measures.

**Article 39** The competent forestry departments shall conduct wetland resource survey, establish and perfect wetland resource archives, and establish important wetland monitoring sites in conjunction with relevant departments, conduct comprehensive assessment of wetland resource, utilization and ecosystem regularly, and make the results public in accordance with relevant regulations.

**Article 42** The organizations in charge of wetland management and protection shall formulate various management systems, strengthen management of wetland protection and related activities, stop and report wetland destructions promptly, and assist in wetland protection and law enforcement.

The wetland protection and management departments shall strengthen supervision and inspection over the performance of the organizations in charge of wetland management and protection.

## 4.2.2 Regulations on National Nature Reserve of the Yellow River Delta, Shandong

(Adopted at the 46th Meeting of the Standing Committee of the Seventh People's Congress of Dongying on March 10, 2017)

Approved at the 27th Meeting of the Standing Committee of the 12th People's Congress of Shandong Province on March 29, 2017

Amended according to the Decisions of the Standing Committee of the People's Congress of Dongying on Modifying the Regulations on National Nature Reserve of the Yellow River Delta, Shandong approved at the Sixth Meeting of the Standing Committee of the Eighth People's Congress of Dongying on October 24, 2017 and approved by the 33rd Meeting of the Standing Committee of the 12th People's Congress of Shandong Province on December 1, 2017)

**Article 13** According to the scope and boundary of the nature reserve approved by the State Council, the administrative agencies of nature reserves shall set up the boundary signs for the nature reserve and functional areas, and make them public.

No organization or individual shall destroy or move the boundary signs of the nature reserve without authorization.

**Article 19** The administrative agency of the nature reserve shall strengthen management of natural resources and natural environmental protection, conduct natural resource surveys and natural environment monitoring, evaluate and analyze natural resources and natural environmental protection, propose and implement protection measures.

**Article 20** The administrative agency of the nature reserve shall establish a rescue mechanism for rare wild animals, domesticate and breed local rare and endangered wild animals according to law, protect wild animal populations reasonably, and maintain ecosystem safety.

**Article 21** Any organization or individual if finding injured, sick, weak or trapped wild animals in the nature reserve that need rescue shall promptly report to the administrative agency of the nature reserve.

## 4.3 Tangshan

### 4.3.1 Regulations on Management of Provincial Wetland Park in Nanpu Zuidong, Luannan, Hebei

**Article 2** For wetland parks, an administrative department shall be designated to be in charge of construction and management. It shall:

(1) Publicize and implement laws and regulations on wetland resource protection and management, and conduct wetland protection publicity and education;

(2) Implement the overall plan of the wetland parks, determine the scope of wetland parks and functional zones, and set up landmarks and signs;

(3) Formulate and implement management plans for wetland parks, and improve the protection and management system;

(4) Organize investigation and dynamic monitoring of wetland resources regularly, prepare files, and take protection and management measures accordingly;

(5) Coordinate relevant affairs in wetland parks;

(6) Establish a harmonious community co-management mechanism, and give priority to the surrounding communities and local residents in wetland resource management, protection and service.

## **4.4 Cangzhou**

### **4.4.1 Regulations of Cangzhou on Ecological Environment Protection Responsibilities (for Trial Implementation)**

#### **Article 14 Development and Reform Departments**

(1) Incorporate the development of ecological civilization and environmental protection into the economic and social development plan and annual plan, formulate a system of ecological civilization construction objectives, and conduct evaluation and assessment;

(2) Formulate and implement zoning for main functions, prepare the municipal spatial plan, and promote construction of the Beijing-Tianjin-Hebei Ecological Environment Supporting Zone.

(3) Participate in preparation of ecological and environmental protection plans. When preparing and approving plans, implement relevant laws and regulations on environmental impact assessment, and carry out environmental protection policies and measures in optimizing the spatial development pattern of land.

#### **Article 30 Cultural Departments**

(1) Strengthen literary and artistic publicity of ecological civilization construction and environmental protection, and raise the social awareness of environmental protection.

#### **Article 36 Press, Publication, Radio, Film and Television Departments**

(1) Coordinate such news media as radio and television stations, strengthen

publicity and education on ecological and environmental protection, and issue environmental protection advertisements.

(2) Instruct the media to increase exposure of environmental violations.

#### **Article 40 Tourism Development Departments**

(1) Strengthen the connection with ecological red line and environmental protection plan, utilize tourism resources scientifically and rationally, and prevent environmental pollution and ecological damage.

(2) Specify ecological and environmental protection objectives, tasks and main measures in tourism development plan, special tourism plan, and scenic spot construction and operation.

(3) Strengthen ecological and environmental protection in tourism development and operation, and promote environmental protection and pollution prevention in A-level scenic spots and star hotels.

(4) Give guidance to the work related to eco-tourism construction and advocate eco-tourism. Promote the awareness of ecological and environmental protection among tourists, tourism operators and workers, and develop civilized tourism.

## **4.5 Qinhuangdao**

### **4.5.1 Regulations of Qinhuangdao on Coastline Protection**

**Article 13 [Strictly Protected Areas]** Coastlines with good natural forms and significant ecological functions and resource values shall be designated as strictly protected areas.

Strictly protected areas are defined according to the relevant requirements of ecological protection red line, and the following coastlines shall be listed as strictly protected areas:

(1) The core zone of the nature reserve, the key protected area of special marine protected areas, and the conservation area of marine wetland parks at the provincial level or above;



(2) The core zones of protected areas for water quality and germplasm resource protection;

(3) High-quality beaches with special landscape protection values;

(4) The coastline for important coastal migratory birds to live and migrate;

(5) Typical geological landscape;

(6) The protection scope of natural and cultural relics with major scientific and cultural values;

(7) Other coastlines with well-maintained natural forms, significant ecological functions and great resource values.

**Article 17 [No Excavation of Sea Sand]** Except for public welfare projects or legally approved dredging of harbor basins, waterways and anchorages, etc., it is strictly forbidden for any organization or individual that has not obtained a sea sand excavation license and a sea area license to excavate sea sand.

**Article 31 [Development of Coastline Tourism]** When developing coastal tourism projects, it is a must to strictly protect the ecological environment and landscape resources along the coastline, encourage differentiated development, highlight characteristics, build open coastlines with beautiful scenery, leisure tourism and recreational functions which integrate ecological protection and tourism development, and construct public service facilities, and expand the public space for people to access the sea.

Development of coastal vacation tourism, marine leisure tourism, recreational fishery, marine tourism for science education is encouraged to maintain ecological and cultural diversity, and protect landscape resources such as coasts, dunes and vegetation.

**Article 34 [No Illegal Occupation]** Except for military management areas, port management areas, core zones of marine protection areas, and other special management areas that have been approved to be closed according to law, no organization or individual shall occupy coastlines illegally to restrict passage or access to the sea.

## 4.6 Panjin

### 4.6.1 Regulations of Panjin on Wetland Conservation

(Adopted at the 26th Meeting of the Standing Committee of the Seventh People's Congress of Panjin on December 29, 2016, adopted at the 33rd Meeting of the 12th Standing Committee of the Provincial People's Congress on March 31, 2017, and effective as of May 1, 2017)

**Article 6** The Municipal People's Government shall establish a wetland protection committee to coordinate and decide on major issues of wetland protection.

The municipal wetland protection committee shall consist of members from the departments of forestry, water, ocean & fishery, finance, agriculture, land & resources and environmental protection, etc. The daily work shall be undertaken by the competent municipal department of forestry administration.

The people's governments of counties (districts) may establish wetland protection coordination agencies to coordinate and decide on major issues of wetland protection.

**Article 7** The competent departments of cities, counties and districts for forestry administration shall organize and coordinate protection of wetlands in the areas under their respective jurisdiction, and their subordinate administrative agencies for wetland protection shall undertake daily work of wetland protection.

By performing their respective duties, the administrative departments of water, ocean & fishery, environmental protection, land & resources and public security, etc. shall maintain the work related to wetland protection according to law.

The municipal administrative agency for wetland protection shall perform the following duties:

- (1) Publicize and implement laws, rules and regulations related to natural resource management and ecological environment protection;
- (2) Carry out wetland protection plans;
- (3) Formulate and implement various management systems and emergency plans for wetlands;

- (4) Protect and manage wildlife and other natural resources in wetlands;
- (5) Survey, monitor and evaluate natural resources and ecological environment, etc.;
- (6) Conduct patrolling, inspection and daily management within wetlands;
- (7) Monitor alien species introduced into wetlands on a dynamic basis;
- (8) Carry out international and domestic information exchange and cooperation on wetland protection and management; (9) Other duties of wetland protection and management stipulated by laws and regulations.

**Article 9** The Municipal People's Government shall create the event of "Panjin Wetland Week".

The people's governments of cities, counties and districts, relevant departments and news media shall carry out wetland protection publicity and education activities in conjunction with the World Wetland Day and Panjin Wetland Week to popularize wetland knowledge and raise the social awareness of wetland protection.

**Article 10** The people's governments of cities, counties and districts and relevant departments shall conduct scientific research on wetland protection by building wetland publicity and education bases, promote application of scientific research outcomes, and improve wetland protection.

Organizations and individuals are encouraged and supported to participate in wetland protection by providing service or donations, etc.. The people's governments of cities, counties and districts and relevant departments shall give commendations and rewards to organizations and individuals that have made great achievements in wetland protection.

**Article 12** The Municipal People's Government shall establish an expert consultation agency for wetland protection, which provides decision-making advice for determination of the scope of wetlands, preparation of wetland protection plans, drafting of a list of wetlands, formulation of implementing plans for wetland protection, evaluation of utilization of wetland resources, and other matters related to wetland.

The specific work of the consultation agency shall be organized by the competent municipal department of forestry administration.

**Article 13** According to the provincial wetland protection plan, the competent

municipal department of forestry administration shall, in conjunction with relevant departments, formulate a municipal wetland protection plan, which shall be published and implemented after being approved by the municipal people's government.

Wetland protection plans shall be prepared according to the distribution of wetlands, scope of protection, types, ecological functions, utilization of water resources, wildlife resources and land, etc., and shall specify objectives and tasks of wetland protection, overall layout, protection priorities, safeguard measures, and protection investment, etc.

Wetland protection plans shall be in compliance with the national economic and social development plans, and connected with urban and rural plans, overall land use plans, marine functional zoning, environmental protection plans, and tourism development plans, etc.

In formulating wetland protection plans, relevant organizations, experts and the public shall be solicited for their opinions through forums and demonstration meetings, etc.

**Article 14** Wetland protection plans shall be the basis for wetland protection, utilization, management, and restoration. The plans shall be strictly observed by all organizations and individuals and shall not be modified without authorization. Any modification, if needed, shall be subject to the procedure and authorization as originally approved.

**Article 17** A list of wetlands shall be created for protection and management. The list shall specify the name of wetlands, their type, protection level, protection scope, management organization and contact means, etc., which are shown on the protection sign.

The list and protection scope of important wetlands at and above the provincial level shall be subject to relevant national and provincial regulations.

The list of municipal important wetlands, the list of common wetlands and their protection scope shall be determined or adjusted by the competent municipal department of forestry administration in conjunction with the municipal departments of water, ocean & fishery, environmental protection, land resources, and agriculture, etc., and shall be made public after being approved by the Municipal People's Government.

**Article 20** In order to balance the ecosystem of wetlands, the people's governments

of cities, counties and districts shall, according to the wetland protection plan, determine the scope of important areas for wild animals to live and reproduce in wetlands, close the areas gradually, and restrict people's access thereto.

The people's governments of cities, counties and districts shall formulate an exit mechanism for the existing oilfield production and living facilities, communication lines and fisheries in the closed management area, and residents and production and living facilities within the sea beaches and inter-tidal zones.

**Article 23** Activities such as reed harvesting and fishery breeding in wetlands shall be carried out in accordance with the schedule, scope and relevant regulations issued by the people's governments of cities, counties and districts, and shall not destroy the living and reproductive environment of wild animals.

**Article 28** Any organization or individual is forbidden to:

(1) Destroy or change the wetland protection landmarks without authorization, and destroy wetland monitoring equipment and facilities;

(2) Graze, cut reeds, and cut grass in wetlands beyond the allowed scope;

(3) Drain water resource of wetlands or cut off the connection between water systems of and surrounding wetlands without authorization;

(4) Dig ponds or trenches, build dams, burn the grass on wasteland, extract soil, and drill wells in wetlands without authorization;

(5) Reclaim or fill in wetlands without authorization;

(6) Discharge sewage, toxic and harmful substances, or dump solid waste;

(7) Pick, or collect and sell bird eggs illegally in the main living and reproductive areas of migratory birds;

(8) Hunt wild animals under protection, destroy the living and reproductive areas of migratory birds and other wild animals, or migratory channels of fishes;

(9) Introduce alien species into wetlands without authorization;

(10) Have other acts of destroying wetlands.

#### 4.6.2 Measures for Administration of Liaohe Estuary (Shuangtai Estuary) National Nature Reserve, Liaoning

**Article 5** The people's government at the county level and the management committee of the economic zone where the protected area is located shall have the responsibility to protect the protected area, include protection, construction and management of the protected area in the local economic and social development plan, and formulate and implement policies and measures which help protect and utilize the protected area reasonably.

(1) Include the funds required for protection, management and construction development of the protected area in the fiscal budget at the same level according to the local conditions, and appropriate funds exclusively for protection, management, construction and development of the protected area.

(2) Support the administrative agency of the protected area, and maintain resource protection, publicity and education.

**Article 6** The Liaohe Estuary (Shuangtai Estuary) National Nature Reserve Administration Bureau ("Bureau") is the administrative agency of the protected area, which is subordinate to Panjin Municipal People's Government and is under the guidance and supervision by the competent provincial department of forestry administration. The main duties of the Bureau are as follows:

(1) Implement relevant laws, rules, regulations and policies;

(2) Organize the preparation, revision and implementation of the overall plan and special plans of the protected area;

(3) Formulate and implement various management systems for the protected area;

(4) Organize resource investigation and environment monitoring in the protected area, and establish resource and environment monitoring files;

(5) Organize or assist relevant departments to carry out scientific research on the protection, reproduction and ecological environment of wild animals and plants;

(6) Strengthen the publicity and education of nature conservation;

(7) Organize, supervise and manage the eco-tourism activities in the experimental zone of the protected area;

(8) Approve the entry into the buffer zone of the protected area for teaching and scientific research activities, and supervise and inspect the protection and management of the protected area;

(9) Patrol and inspect, prevent disasters, provide disaster relief, and repair, maintain and replace protection facilities in, the protected area;

(10) Investigate violations concerning the resources and environment of the protected area and give punishments according to law.

The public security agencies of the protected area shall maintain the public order in the protected area, give punishments against illegal and criminal acts that endanger the governance and protection of the protected area, and assist in administration and law enforcement.

**Article 12** The Bureau shall be responsible to control the reed marshes, rivers, beaches, and estuary wetlands in the core zones and buffer zones of the protected area.

The ownership and use rights of the land and waters in the protected area shall be exercised according to law; no organization or individual shall expand the area in use or change the purpose without authorization.

The organizations and individuals that use the land according to law shall not expand the area in use or change the purpose without authorization. If it is necessary to expand the area in use for special reasons and it does not endanger the natural environment, natural resources and the protected wildlife in the protected area, it shall be proposed by the Bureau and subject to other related procedures according to relevant national regulations after being approved by the competent administrative department at the next higher level and passing the environmental impact assessment; if it is necessary to change the use of land for special reasons, the Bureau and the environmental protection department shall be solicited for their opinions in advance, and other related procedures shall be fulfilled according to relevant national regulations.

No organization or individual is allowed to destroy, occupy, buy or sell or otherwise transfer the land in the protected area illegally.

**Article 13** It is a must to strengthen the protection and management of rare birds and their habitats, e.g. red-crowned cranes, oriental white storks and black-billed gulls; it is prohibited to pick, collect and sell bird eggs illegally, and destroy bird nests.

During the period of bird migration and reproduction, it is prohibited to influence

the habitation and reproduction of birds. Sightseeing aircraft (planes, hot air balloons, etc.) are prohibited from accessing the skies over the protected area, and fishing boats, speedboats and other vessels from accessing or being moored at the estuary of protected areas.

**Article 23** The existing oilfield production operations and facilities in protected areas shall be withdrawn or demolished gradually as planned, and the original look of wetlands shall be restored.

**Article 25** Organizations and individuals engaged in operations of paddy fields, reeds and dry fields in protected areas shall not apply pesticides or chemical agents prohibited by the state. When applying pesticides and fertilizers, the packaging and waste shall not be discarded anywhere.

The production of reeds in protected areas shall be controlled and supervised by the Bureau.

## **4.7 Dalian**

### **4.7.1 Measures for Administration of Laotie Hill National Nature Reserve on Snake Island**

(Promulgated by Order No. 7 of Dalian Municipal People's Government on July 18, 1997;

Amended according to Dalian Municipal People's Government Order No. 104 dated August 13, 2009: Decisions of Dalian Municipal People's Government on Modifying 5 Regulations of the Municipal Government;

Amended for the second time according to Dalian Municipal People's Government Order No. 159 dated February 19, 2019: Decisions of Dalian Municipal People's Government on Modifying 16 Regulations of the Municipal Government;

Amended for the third time according to Dalian Municipal People's Government Order No. 163 dated December 5, 2020: Decisions of Dalian Municipal People's Government on Abolishing and Modifying Some Government Regulations)

**Article 7** The municipal department in charge of natural resources shall prepare



and implement an overall plan for the nature reserve. For that purpose, relevant organizations, experts and the public shall be solicited for their opinions.

If the preparation of special plans involves the nature reserve, the municipal department in charge of natural resources shall be solicited for its opinions, and the special plans shall be in compliance with the overall plan for the nature reserve.

**Article 8** Organizations and residents in the nature reserve and persons who have been approved to access the nature reserve shall comply with various management systems of the nature reserve and accept the management by the administrative agency of the nature reserve.

**Article 13** The administrative agency of the nature reserve shall provide ecological protection knowledge and skill training for the residents in and around the nature reserve, and give them priority when hiring people for management and protection of the nature reserve.

## **4.8 Dandong**

### **4.8.1 Regulations on Dandong Yalu River Estuary Wetland as National Nature Reserve**

(Adopted at the 30th Meeting of the Standing Committee of the 15th People's Congress of Dandong on November 29, 2016;

Approved at the 31st Meeting of the Standing Committee of the 12th People's Congress of Liaoning Province on January 10, 2017;

Adopted at the 37th Meeting of the Standing Committee of the 15th People's Congress of Dandong on November 29, 2017;

Amended according to the decision of modification approved at the 39th Meeting of the Standing Committee of the 12th People's Congress of Liaoning Province on January 19, 2018)

**Article 6** A co-management mechanism and a joint management committee for the nature reserve shall be established. The administrative agency of the nature reserve shall formulate the charter of the joint management committee, and maintain

management and protection of the nature reserve in conjunction with the People's Government of Donggang City, Dagushan Economic Zone Management Committee, and the people's governments of townships, villagers' committees, ports, farms, reed farms, salt farms, police stations and people's representatives in the related areas.

The funds for daily management of the nature reserve, etc. shall be included in the local fiscal budget.

A co-management reward fund shall be established for the construction, management, protection of the nature reserve, and community co-management to reward towns and villages that have improved the ecological environment of the nature reserve, and organizations and individuals that have made great achievements in management of the nature reserve. The co-management award fund originates from financial investment, social donations, and sponsorship, etc.

**Article 8** All organizations and individuals in the nature reserve shall use the land and tidal flats within the nature reserve according to law, and shall not destroy, occupy or change the purpose of natural wetlands and artificial wetlands in the nature reserve.

**Article 9** Any introduction of alien species into the nature reserve shall be under firm control. If such introduction is needed, it shall be scientifically demonstrated and implemented after being approved according to the established procedure, and shall be supervised and managed by relevant competent departments, e.g., forestry, ocean and fishery, and agriculture within their respective duties.

**Article 14** For migratory bird protection, the administrative agency of the nature reserve shall establish the environmental noise control standard and set up signs in the areas where the use of sound devices is prohibited.

**Article 15** In the core zones and buffer zones of the nature reserve, it is forbidden to construct any facilities for non-natural protection management purposes, except field observation stations, patrol trails, fire-fighting facilities and small permanent facilities used for work safety, protection and management according to the overall plan approved for the nature reserve.

In the core zones and buffer zones of the nature reserve, the purpose of the facilities and projects existing due to historical reasons shall not be changed without authorization. If it is necessary to renovate, maintain or change the original facilities, approval shall be obtained from the administrative authority according to law, and materials and processes that have the least impact on the ecological environment and

are in harmony with the ecological environment shall be used. The projects that pollute the ecological environment shall be shut down or removed from such zones.

In the experimental zones of the nature reserve, it is prohibited to construct production facilities that pollute the environment, destroy resources or the landscape. For other projects, the pollutant discharge shall not exceed the national and local standard. The facilities existing in the experimental zones of the nature reserve whose pollutant discharge exceeds the national and local standard shall be rectified within a prescribed period of time.

The decision of such rectification shall be made by the agency stipulated by laws and regulations; the organizations and individuals subject to such rectification shall finish it on schedule.

**Article 16** In the sea area within the core zone and buffer zone of the nature reserve, any development and utilization that may change the natural attributes of the sea area is prohibited.

Any user of the sea within the experimental zones of the nature reserve, if the use of the sea will change its nature, shall apply to the competent department of ocean and fishery administration, which will solicit the administrative agency of the nature reserve for its opinions and submit the application to the competent people's government for approval according to law.

## 4.9 Changhai

### 4.9.1 Opinions on Management of Inter-tidal Zones in Changhai County (for Trial Implementation)

These Opinions are formulated to strengthen the management of natural resources in, and protect the environment and marine biodiversity of the inter-tidal zones based on the conditions of this county.

1. The inter-tidal zone refers to the area between the coastline and the low tide line. The coastline is subject to the revised, measured, submitted and approved data in 2019.

2. According to the principle of territorial management, the authentic rights of

the inter-tidal zones are granted to the local villages (communities) for management. If the villages (communities) cannot accept the authentic rights, they shall be controlled by the local towns.

3. The authorities of all local villages (communities) shall strengthen environment protection for the inter-tidal zones and, if finding any act of digging sand, building dams or discharging garbage, shall promptly stop and report such acts to the Bureau of Natural Resources, which shall investigate such acts and give punishments if needed.

4. The authorities shall protect the biological diversity of the inter-tidal zones and shall not use the inter-tidal zones for aquaculture production.

5. The authorities shall reasonably determine and make public the scope of sea waters for tourists to access. It is necessary to regulate tourists' access to the sea waters and settle the conflict between the access to the sea waters and the sea waters under authentic rights.

6. The local villages shall designate workers to clean the area within 20 meters of the land away from the inter-tidal zones and their coastline and regulate the placement of aquaculture materials.

7. The governments of townships shall give guidance to the villages under their jurisdiction to ensure that the relevant work is done effectively. The authorities of all local townships and villages shall perform their respective management duties, and will be brought to account for dereliction of duty if any.

8. No licensing fee is charged for use of the inter-tidal zones.

9. The interpretation of these Opinions shall belong to Changhai County Bureau of Natural Resources.

General Office of Changhai County Bureau of Natural Resources

Issued on July 10, 2020

#### 4.9.2 Regulations on Dalian Changhai Provincial Nature Reserve for Rare Marine Wildlife

**Article 5** Changhai County Bureau of Environmental Protection is the

administrative department in charge of Dalian Changhai Provincial Nature Reserve for rare marine wildlife.

**Article 11** The main duties of the administrative agency of the nature reserve are as follows:

(1) Implement the national laws, regulations, guidelines and policies on nature protection;

(2) Formulate various management systems for the nature reserve, and put the nature reserve under uniform management;

(3) Survey natural resources and make files, organize environmental monitoring, and protect the natural environment and resources in the nature reserve;

(4) Organize or assist relevant departments to conduct scientific research in the nature reserve;

(5) Conduct publicity and education on nature protection;

(6) Organize sightseeing, tourism and other activities without affecting the natural environment and resources of the nature reserve.

**Article 14** Anyone is forbidden to enter the core zones of the nature reserve. Where scientific studies, observations and surveys thereto are necessary for scientific research, the individuals concerned shall submit the applications and activity plans to and be approved by the administrative agencies of the nature reserve in advance.

**Article 15** Tourism, production and trading activities are prohibited in the buffer zones of the nature reserve. In case non-destructive activities, such as scientific research, teaching practice and specimen collection, need to be conducted for teaching or scientific research purposes in buffer zones of the nature reserve, applications and activity plans shall be submitted to and be approved by the administrative agencies of the nature reserve in advance.

Organizations and individuals conducting the activities mentioned in the preceding sentence shall submit the data they have obtained to the administrative agency of the nature reserve for filing.

**Article 18** No production facilities shall be built in the core zones and buffer zones of the nature reserve. It is forbidden to build production facilities that may cause environmental pollution or damage the natural resources in the experimental zones of

the nature reserve. For other projects to be built in these zones, discharge of pollutants shall not exceed the national and local standards. If the discharge of pollutants by the facilities that have been built in the experimental zones of the nature reserve has exceeded the national and local discharge standards, it shall be rectified within a prescribed period of time. Remedies shall be made for the damage caused.

Projects constructed in the protected zones around the nature reserve shall not impair the environmental quality of the nature reserve; if any damage has been caused, it shall be rectified within a prescribed period of time.

#### 4.9.3 Measures for Administration of Dalian Changhai Provincial Nature Reserve for Rare Marine Wildlife

**Article 12** The administrative agency of the nature reserve shall be staffed with professional and technical personnel in charge of protection and management of the nature reserve.

The main duties of the administrative agency of the nature reserve are as follows:

- (1) Implement the national laws, regulations, guidelines and policies on nature protection;
- (2) Formulate various management systems for the nature reserve, and put the nature reserve under uniform management;
- (3) Survey natural resources and make files, organize ecological environment monitoring, and protect the natural environment and resources in the nature reserve;
- (4) Organize or assist relevant departments to conduct scientific research in the nature reserve;
- (5) Conduct publicity and education on nature protection;
- (6) Organize sightseeing, tourism and other activities without affecting the ecological environment and natural resources of the nature reserve.

**Article 17** The competent department of the county for environmental protection shall establish a law enforcement and inspection mechanism and conduct daily activities of law enforcement and inspection. Any violation if found during patrols shall be stopped on the spot and punishments shall be given accordingly. If any violation is

under jurisdiction of other departments, it shall be stopped on the spot; the evidence shall be secured, the case reported to the relevant departments, and assistance given to the relevant departments when they investigate the case.

**Convention Concerning the Protection of  
the World Cultural and Natural Heritage  
Natural Heritage: China**

# **Migratory Bird Sanctuaries along the Coast of Yellow Sea-Bohai Gulf of China (Phase II)**

## **Annex 9 References (Literature)**

**National Forestry and Grass Administration  
People's Republic of China**

**2022.1**



- Bai, Q., J. Chen, Z. Chen, G. Dong, J. Dong, W. Dong, V. W. K. Fu, Y. Han, G. Lu, J. Li, Y. Liu, Z. Lin, D. Meng, J. Martinez, G. Ni, K. Shan, R. Sun, S. Tian, F. Wang, Z. Xu, Y.-t. Yu, J. Yang, Z. Yang, L. Zhang, M. Zhang, and X. Zeng. 2015. Identification of coastal wetlands of international importance for waterbirds: a review of China Coastal Waterbird Surveys 2005–2013. *Avian Research* **6**:12.
- Bamford, M., D. Watkins, W. Bancroft, G. Tischler, and J. Wahl. 2008. Migratory shorebirds of the east Asian - Australasian flyway; population estimates and internationally important sites. *Wetlands International Oceania, Canberra, Australia*:226-228.
- Barter, M, Riegen, A. 2004. Northward shorebird migration through Yalu Jiang National Nature Reserve. *The Stilt* **46**: 9-14.
- Barter, M. 1990. Asia Water Birds Census Jan, 1990: Wetlands International.
- Barter, M. A. 2002. Shorebirds of the Yellow Sea: Importance, threats and conservation status. *Wetlands International Global Series 9, International Wader Studies 12, Canberra, Australia.*
- Barter, M. A., J. R. Wilson, Z. W. Li, Z. G. Dong, Y. G. Cao, and L. S. Jiang. 2000b. Yalu Jiang National Nature Reserve – A newly discovered internationally important site for northward migrating shorebirds. *The Stilt*:13-20.
- Barter, M., and H. Wang. 2006. Asia Water Birds Census 2006: Wetlands International.
- Barter, M., and Q. Xu. 2004. Northward shorebird migration surveys in 2004 at three Yellow Sea sites in Jiangsu and Shandong provinces. *The Stilt* **46**:2-8.
- Barter, M., J. Wilson, Z. Li, Y. Li, C. Yang, X. Li, Y. Liu, and H. Tian. 2000a. Northward migration of shorebirds in the Shuangtaizihekou National Nature Reserve , Liaoning province, China in 1998 and 1999. *The Stilt* **37**:2-9.
- Barter, M., L. Cao., and Lei, G. 2004. Asia Water Birds Census 2004: Wetlands International.
- Battley, P. F., N. Warnock, T. L. Tibbitts, R. E. Gill, T. Piersma, C. J. Hassell, D. C. Douglas, D. M. Mulcahy, B. D. Gartrell, R. Schuckard, D. S. Melville, and A. C. Riegen. 2012. Contrasting extreme long-distance migration patterns in bar-tailed godwits *Limosa lapponica*. *Journal of Avian Biology* **43**:21-32.
- Beidaihe District Local Chronicles Compilation Committee. 2008. 1988-2003. Beidaihe Chronicles. Beijing: Local Chronicles Publishing House: 45-60.
- Beijing Normal University. 2016. Background investigation report of wild animal resources in Tianjin Binhai New Area. Beijing Normal University
- Zhang, Z.W., Z.G. Wang, J.B. Shi, Q.R. Liu, W.P. Lei, Y.M. Zhang. 2018. Report on Comprehensive Scientific Investigation of Nanpu Wetland in Luannan, Hebei. Beijing Normal University
- Beijing Zhonglin International Forestry Engineering Consulting Co., Ltd. 2020. Master Plan for the Provincial Wetland Park in Nanpu (Zuidong), Luannan, Hebei (2021-2025). Beijing.

- Birdlife Australia, Shorebirds 2020. Online data extraction  
<http://www.birdlife.org.au/projects/shorebirds-2020/dataextractions-sb>
- Blokhin, A. Y. 1998. Breeding wader populations on the marine coasts of north-eastern Sakhalin. *International Wader Studies* **10**:221-224.
- Bocher, P., T. Piersma, A. Dekinga, C. Kraan, M. G. Yates, T. Guyot, E. O. Folmer, and G. Radenac. 2006. Site- and species-specific distribution patterns of molluscs at five intertidal soft-sediment areas in northwest Europe during a single winter. *Marine Biology* **151**:577-594.
- Cao, Z., B. Qin, and B. Wang. 2002. Remote sensing technique in Beidagang wetland ecological monitoring. *Environment and Ecology in the Three Gorges* **1**:31–34.
- Cassill, D., B. Hardisty, and A. Watkins. 2010. A 4D natural selection model illuminates the enigma of altruism in the Shedao pit viper. *Journal of Bioeconomics* **13**:17-29.
- Chai, Z., W. Lei, X. Mo, P. Que, C. Shang, J. Yang, and Z. Zhang. 2020. Bird Diversity of Beidagang Wetland Nature Reserve in Tianjin City. *Wetland Science* **18**:667.
- Chen L., H. J. He. 2015. The Yellow River Delta Wetland Remote Sensing Monitoring and Ecological Evaluation Technology Research. Yellow River Water Conservancy Press.
- Chen, K., X. Yang, and Y. Lu. 2015. Vital Stopover of Shorebirds Migration on the East Asian-Australasian Flyway: Wetlands of Yellow Sea and Bohai Sea. *Wetland Science* **013**:1-6.
- Chen, X. 2017. Study on Biodiversity and Geographical Distribution of Amphibians and Reptiles in Bohai Rim Region. Master. Shenyang Normal University.
- Cheng, Y. 1988. Formation and Evolution on Geomorphology of Yalu River Mouth and Harbor Construction. *Coastal Engineering* **7**:29-36.
- Cheng, Y., and L. Bi. 2002. Primary Character and Motive Change of Shallow Beach in Yalu River Mouth. *Journal of Sediment Research* **3**:59-63.
- China Coastal Waterbird Census Group., Q. Bai, J. Chen. 2015. Identification of coastal wetlands of international importance for waterbirds: a review of China Coastal Waterbird Surveys 2005–2013. *Avian Res* **6**, 12.
- Choi, C. 2015. The Northward migration stopover ecology of Bar-tailed Godwits and Great Knots in the Yalu Jiang Estuary, National Nature Reserve, China. PhD thesis. Massey University, New Zealand.
- Choi, C. Y., H. B. Peng, and P. He. 2019. Where to draw the line Using movement data to inform protected area design and conserve mobile species. *Biological Conservation* **234**:64-71.
- Choi, C. Y., J. Li, and W. J. Xue. 2020. China Coastal Waterbird Census Report (Jan. 2012–Dec. 2019). Hong Kong: Hong Kong Bird Watching Society.
- Choi, C.Y., K. G. Rogers, X. Gan, R. Clemens, Q.Q. Bai, A. Lilleyman, A. Lindseyf, D. A. Milton, P. Straw, Y.-t. Yu, P. F. Battley, R. A. Fuller, and D. I. Rogers. 2016. Phenology of southward migration of shorebirds in the East Asian-Australasian Flyway and inferences

- about stop-over strategies. *Emu - Austral Ornithology* **116**:178-189.
- Choi, C.Y., P. F. Battley, M. A. Potter, K. G. Rogers, and Z. Ma. 2014b. The importance of Yalu Jiang coastal wetland in the north Yellow Sea to Bar-tailed Godwits *Limosa lapponica* and Great Knots *Calidris tenuirostris* during northward migration. *Bird Conservation International* **25**:53-70.
- Choi, C.Y., P. F. Battley, M. A. Potter, Z. Ma, and W. Liu. 2014a. Factors Affecting the Distribution Patterns of Benthic Invertebrates at a Major Shorebird Staging Site in the Yellow Sea, China. *Wetlands* **34**:1085-1096.
- Choi, C.Y., P. F. Battley, M. A. Potter, Z. Ma, D. S. Melville, and P. Sukkaewmanee. 2017. How migratory shorebirds selectively exploit prey at a staging site dominated by a single prey species. *The Auk* **134**:76-91.
- Dandong Yalu River Estuary Wetland National Nature Reserve Administration, Editor-in-Chief of Miranda Nature Foundation of New Zealand. 2014. A survey report of wading birds in the Yalu River Estuary from 1999 to 2010. China Forestry Publishing House.
- Dandong Yalu River Estuary Wetland National Nature Reserve Administration. 2018. 2011-2015 Yalu River Estuary Wetland Migratory Birds Investigation Report. Dandong Yalu River Estuary Wetland National Nature Reserve Administration.
- Dandong Yalu River Estuary Wetland National Nature Reserve Administration. 2020. 2016-2020 Yalu River Estuary Wetland National Nature Reserve Waterbird Survey Report. Dandong Yalu River Estuary Wetland National Nature Reserve Administration.
- Debortoli, N. S., D. G. Clark, J. D. Ford, J. S. Sayles, and E. P. Diaconescu. 2019. An integrative climate change vulnerability index for Arctic aviation and marine transportation. *Nat Commun* **10**:2596.
- Delany, S., R. Jaensch, C. Chang-Yong, A. Lesterhuis, D. Unterkofer, T. Langendoen, S. Butchart, S. Nagy, T. Mundkur, R. Clay, and D. Blanco. 2012. Waterbird Population Estimates Fifth Edition - Summary Report. Wageningen, The Netherlands.
- Di, G. B., Q. Wang, H. Wang. 2019. Research on the integration and performance of island tourism and marine fisheries——Taking Changhai County, Dalian City as an example. Chinese Geographical Society Economic Geography Professional Committee Academic Annual Meeting Abstract.
- Dong, Y., W. Xiao, C. Zhao. 2008. Analysis of climate change in Dagang District of Tianjin in 20 years. *Science and Technology Information (Academic Research)*: 347–349.
- Du, M., Y. Yu, X. Wang, X. Lin, C. Wu, and L. Wang. 2006. Preliminary Study on the Migration of Passerine in Autumn in Laotieshan Mountain, Liaoning. *Chinese Journal of Zoology* **41**:74-79.
- Fang, C., J. Liu, F. Liu, X. Wang., J. X. Yang, J. Yang, and Q. Xu. 2014. Research on the Change of Marine Environmental Quality and Its Influence Factor Analysis in Tangshan City from 2002 to 2012. *Geological Survey and Research* **37**:217-223.

- Feng, C., S. Zhang, W. Liu, T. Zhao, Y. Cao, J. Xiang-Yu, and Z. Ma. 2019. Food Composition of Five Migratory Shorebirds at the Dandong Yalu River Coastal Wetland in Spring Migration. *Journal of Fudan University (Natural Science)* **58**: 497-505.
- Feng, J. 1998. On The Formation and Evolution of The Qilihai Lagoon. **2**:6-11.
- Fu, C., D. Li, and Z. Yu. 2012. The Variation in Species Composition, and Density of Phytoplankton in the Ranches Northwest Coast in Changhai County, Liaoning Province, China. *Fisheries Science* **31**: 408-412.
- Gao, H., Y. Tang., B. He. 2020. An Illustrated Book of Wild Plants in Qinhuangdao. Hebei: Yanshan University Press.
- Gao, M. 2011. The Study on Bird Resources and Avian Ecological Conservation in the Lower Reaches of the Yalu River. Northeast Normal University.
- Guan, Y. X., G. H. Liu, Q. S. Liu, and Q. H. Ye. 2001. The study of salt-affected soils in the Yellow River Delta based on remote sensing. *Journal of Remote Sensing* **5**:46-53.
- Han, Y., Z. Tian, and Y. Wang. 2013. South Dagang Wetland in Cangzhou City: current situation and protection countermeasures. *China Water Resources*:81-82.
- Hansen, B. D., R. A. Fuller, D. Watkins, D. I. Rogers, R. S. Clemens, M. Newman, E. J. Woehler, and D. R. Weller. 2016. Revision of the East Asian-Australasian Flyway Population Estimates for 37 listed Migratory Shorebird Species. ( Unpublished report for the Department of the Environment.) . BirdLife Australia, Melbourne.
- Hassell, C. J., A. Boyle, M. Slaymaker, Y. C. Chan, and T. Piersma. 2014. Red Knot Northward Migration Through Bohai Bay, China, Field Trip Report April-June 2014. Global Flyway Network.
- Hassell, C., A. Boyle, M. Slaymaker, N. Jackett, and T. Piersma. 2019. Shorebird Northward Migration Through Bohai Bay, China. The Report on The Tenth Field Season April-June 2019. 22.
- Hassell, C., A. Boyle, M. Slaymaker, Y. C. Chan, and T. Piersma. 2011a. Red Knot northward migration through Bohai Bay, China, field trip report April and May 2011.
- Hassell, C., I. Southey, A. Boyle, and H. Y. Yang. 2011b. Red knot *Calidris Canutus*: subspecies and migration in the East Asian-Australasian flyway—where do all the red knot go. *Birding Asia* **16**:89–93.
- He, J. Q. 2011. Exotic Plants in China. Shanghai Scientific & Technical Publishers.
- He, P., Melville, D. S., Peng, H. B., Tan, K., Chen, Y. and Ma, Z. J. 2016. Aquaculture pond banks as high tide roosts: What physical characteristics are more attractive to shorebirds? *Stilt* **69-70**: 62–65.
- Hebei Forestry Investigation, Planning and Design Institute. 2009. Hebei Beidaihe National Wetland Park master plan.

- Hebei Forestry Investigation, Planning and Design Institute. Hebei Forestry and Grassland Bureau. 2020. Approval of Hebei Forestry and Grassland Bureau on agreeing to establish Hebei Luannan Nanpu Zuidong Provincial Wetland Park.
- Hebei Normal University. 2012. Comprehensive scientific investigation report of Changli Gold Coast National Nature Reserve.
- Hong, Y., W. Qu, Z. Cai, Q. Zheng, H. Cao, and X. Liu. 2019. Study on Diversity of Plants on Beidagang Wetland Nature Reserve in Tianjin. *Shandong Forestry Science and Technology* **1**:20-24.
- Hou, Y. 2014. Study on breeding ecology of Japanese Marsh Warbler (*Megalurus pryeri*) in Dandong Yalu River Estuary wetland. Master. Northeast Forestry University.
- Howes, J. 1989. Shorebird studies manual. Asian Wetland Bureau.
- Hoyo, J. D., A. Elliott, J. Sargatal, and D. A. Christie. 2013. Handbook of the Birds of the World. Lynx Edicions.
- Hu, C., H. Xu, B. Shui, Z. Han, X. Du, F. Wang, W. Zheng, and L. Li. 2015. Taxonomic Diversity of Fish Species in Tangshan Bay, The Bohai Sea. *Acta Hydrobiologica Sinica* **39**:609-614.
- Hu, L. L., Z. Mu, and Y. L. Wang. 2014. Analysis of Nandagang Wetland Water Environment Status and Influence Factors. *Water Conservancy Construction and Management* **34**:78-80+46.
- Hua, N., K. U. N. Tan, Y. Chen, and Z. Ma. 2015. Key research issues concerning the conservation of migratory shorebirds in the Yellow Sea region. *Bird Conservation International* **25**:38-52.
- International, W. 2021. Waterbird Population Estimates.
- IUCN. 2014. IUCN Red List of Threatened Species. Version 2017. 2.
- Jia, M., Z. Wang, D. Liu, C. Ren, X. Tang and Z. Dong. 2013. Monitoring Loss and Recovery of Salt Marshes in the Liao River Delta, China. *Journal of Coastal Research* **31**: 371-377.
- Jia, M., Z. Wang, D. Liu, C. Ren, X. Tang, and Z. Dong. 2015. Monitoring Loss and Recovery of Salt Marshes in the Liao River Delta, China. *Journal of Coastal Research* **300**:371-377.
- Jiang, Z., Y. Ma, Y. Wu, Y. Wang, Z. Feng, K. Zhou, S. Liu, Z. Luo, and C. Li. 2015. China's mammalian diversity. *Biodiversity Science* **23**:351-364.
- Jin, L. 2018. Division of phytoplankton functional groups in coastal freshwater wetlands --a case study of Beidaihe National Wetland Park (MSc). Hebei University.
- Jin, Z., and C. Liu. 2008. Quantitative study on reservoir diagenesis in Northern Dagang Structural Belt, Huanghua Depression. *Petroleum Exploration and Development* **35**:581-587.
- Kanai, Y., M. Ueta, N. Germogenov, M. Nagendran, N. Mita, and H. Higuchi. 2002. Migration routes and important resting areas of Siberian cranes (*Grus leucogeranus*) between northeastern Siberia and China as revealed by satellite tracking. *Biological Conservation*

- Kang, J., Y. Fu, Y. Du, L. Yuan, Y. Sun, F. Li, and X. Lin. 2017. The Enlightenment of Construction of Dalian Changshan Islands National Marine Park on Island Reserves' Management. *Ocean Development and Management* 7:27-32.
- L, H. Q. 1999. *China Wetland Vegetation*. Science Press, Beijing.
- Leading Group for Comprehensive Scientific Investigation Report of Yalu River Estuary Wetland National Nature Reserve in Dandong, Liaoning. 2010. Comprehensive scientific investigation report of Yalu River Estuary Wetland National Nature Reserve in Dandong, Liaoning. Wildlife Research Institute of Northeast Forestry University, Dandong Yalu River Estuary Wetland National Nature Reserve, Liaoning Reserve Authority.
- Lei, W. P. 2017. Studies on the waterbirds used saltpans in north of Bohai Bay. Doctor. Beijing Normal University.
- Lei, W. P., Y. Wu, and Z. Zhang. 2021. Bird diversity assessment of the world heritage nominated site Luannan Nanpu Zuidong wetland in Hebei Province. *Study on Natural and Cultural Heritage* 6:1-13.
- Lei, W., J. A. Masero, C. Dingle, Y. Liu, Z. Chai, B. Zhu, H. Peng, Z. Zhang, and T. Piersma. 2021. The value of coastal saltpans for migratory shorebirds: conservation insights from a stable isotope approach based on feeding guild and body size. *Animal Conservation*.
- Lei, W., J. A. Masero, T. Piersma, B. Zhu, H.-Y. Yang, and Z. Zhang. 2018. Alternative habitat: the importance of the Nanpu Saltpans for migratory waterbirds in the Chinese Yellow Sea. *Bird Conservation International* 28:549-566.
- Li, A., L. Song, N. Jia, N. Wang, and G. Song. 2014. Investigation and ecological links analysis of key biological components in wetlands in Yalu River Estuary. *Wetland Science* 12:374-379.
- Li, B., X. Yuan, M. Chen, S. Bo, L. Xia, Y. Guo, S. Zhao, Z. Ma, and T. Wang. 2020a. How to strive for balance of coastal wind energy development with waterbird conservation in the important coastal wetlands, a case study in the Chongming Islands of East China. *Journal of Cleaner Production* 263.
- Li, D., J. Zhang, Y. Liu, H. Lloyd, E. Pagani-Núñez, and Z. Zhang. 2020b. Differences in dietary specialization, habitat use and susceptibility to human disturbance influence feeding rates and resource partitioning between two migratory *Numenius* curlew species. *Estuarine, Coastal and Shelf Science* 245:106990.
- Li, H., Y. Yuan, X. Yuan, B. Wei, and D. Guan. 2010. Seasonal variation and evaluation on nutrients in Changhai water Liaoning. *Marin Environmental Science* 29:689-692.
- Li, X, S., R. Shine, Z. Debi, and Z. R. Tan. 2006. Low costs, high output: reproduction in an insular pit-viper (*Gloydus shedaensis*, Viperidae) from north-eastern China. *Journal of Zoology* 256:511-521.
- Li, Y. 2019. AgeSettlement and social studies of neolithic culture at Yalu River, Tumen River and Wusuli River Basins (MSc). Liaoning Normal University.

- Li, Y., X. Liu, B. Wang, Y. Li, Y. Chai, and J. Dong. 2017. Research on the community characteristics of macrobenthos in the Liaodong Bay. *Marine Fisheries* **39**:267-276.
- Liu, B., K. Hu, Z. Jiang, F. Qu, and X. Su. 2011. A 50-year sedimentary record of heavy metals and their chemical speciations in the Shuangtaizi River estuary (China): implications for pollution and biodegradation. *Frontiers of Environmental Science & Engineering in China* **5**:435-444.
- Liu, H. Y. 1998. Conservation of wetlands especially as waterfowl habitat in northeast China. Science Press, Beijing, China.
- Liu, J., P. Que, and Z. Zhang. 2019. Species diversity and suggestion for adjustment of the National Protection Level of waterbirds in China. *Wetland Science* **17**:123-113.126.
- Liu, K., W. Zhao, Q. Du, and H. Tan. 2010. Characteristics of the dynamic changes of the Beidagang Wetland in Tianjin, China. *Resources Science* **32**:2356-2363.
- Liu, K., Y. Bian, Y. Wang, G. Liu, and Y. Zhang. 2019. Calculation of carbon sink and influencing factors of carbon emission in island area -- a case study of Changhai County, Liaoning Province. *Resource Development & Market* **35**:632-637.
- Liu, L., and M. Zhang. 2012. Plant diversity in Yalu River estuary wetland in China. *Journal of Eastern Liaoning University (Natural Science)* **19**:232-236.
- Liu, L., H. Han, and M. Zhang. 2010. Floristic composition, characteristics and features of vascular plants in Yalu River estuarine wetlands. *Journal of Northeast Forestry University* **38**:27-29.
- Liu, P. 2008. Population dynamics, habitat selection, and conservation of *gloydius shedaoensis* in Snake Island, Dalian, China (PhD). Northeast Forestry University.
- Liu, X., S. Zhou, H. Zhou, E. Hua, and Z. Zhang. 2015. Macrofaunal Diversity and its relationship with environmental factors in the Bohai Sea. *Guangxi Science* **22**:540-548.
- Liu, Z. H, Y. B. Shen, H. J. Yao, Q. Hu, X. Q. Mo. 2016. Investigation and evaluation report of wetland plant resources in Tianjin Binhai New Area.
- Local Chronicles Office of the People's Government of Qinhuangdao City. 2009. Qinhuangdao City Chronicles 1979-2002. Beijing: Local Chronicles Publishing House 106-107,120-142.
- Lok, T., C. Hassell, T. Piersma, R. Pradel, and O. Gimenez. 2019. Accounting for heterogeneity when estimating stopover duration, timing and population size of red knots along the Luannan Coast of Bohai Bay, China. *Ecology and Evolution* **9**:6176–6188.
- Lu, W., J. Xiao, W. Lei, J. Du, Z. Li, P. Cong, W. Hou, J. Zhang, L. Chen, Y. Zhang, and G. Liao. 2018. Human activities accelerated the degradation of saline seepweed red beaches by amplifying top-down and bottom-up forces. *Ecosphere* **2352**:1-19.
- Luan, T. 2017. A preliminary study on insect diversity in Liaoning Laotie Mountain national nature reserve (MSc). Liaoning Normal University.

- Luo, H., X. Duan, H. Bao, Z. Jin, F. Sun, Y. Liu, M. Ma, and Z. Meng. 2015. The temporal and spatial variation and eutrophication assessment of nutrient salts in Changli Natural Preserve. *Marine environmental Science* **34**:540-545.
- Luo, H., X. Duan, Z. Jin, H. Bao, C. Bao, Y. Xu, and M. Ma. 2015. Study on scope and function adjustment of Changli Golden Beach National Ocean Natural Preserve. *Marine environmental Science* **34**:885-890.
- Luo, H., Z. Feng, Z. Jin, Y. Liu, H. Bao, X. Duan, Y. Xu, and M. Ma. 2015. Characteristics and variation trend of phytoplankton community in Changli Golden Beach National Ocean Natural Preserve. *Journal of Dalian Ocean University* **30**:207-210.
- Ma, M. H., X. Y. Duan, H. Luo. 2015. Marine ecology research of Changli Gold Coast National Nature Reserve. Ocean Press.
- Ma, Z. J., B. Li, K. J. K. Chen. 2005. Study on the utilization of stopover sites and migration strategies of migratory birds. *Acta Ecologica Sinica*. 25:1404-1412.
- Ma, Z., N. Hua, H. Peng, C. Choi, P. F. Battley, Q. Zhou, Y. Chen, Q. Ma, N. Jia, W. Xue, Q. Bai, W. Wu, X. Feng, and C. Tang. 2013. Differentiating between stopover and staging sites: functions of the southern and northern Yellow Sea for long-distance migratory shorebirds. *Journal of Avian Biology* **44**:504-512.
- Mark, B., and R. Adrian. 2004. Northward shorebird migration through Yalu Jiang National Nature Reserve. *The Stilt* **46**:9-14.
- Melville, D. S., H. B. Peng, Y. C. Chan, Q. Q. Bai, P. He, K. Tan, Y. Chen, S. D. Zhang, and Z. J. Ma. 2016b. Gaizhou, Liaodong Bay, Liaoning province, China – a site of international importance for great knot *calidris tenuirostris* and other shorebirds. *The Stilt* :69-70 57-61.
- Melville, D. S., Y. Chen, and Z. Ma. 2016. Shorebirds along the Yellow Sea coast of China face an uncertain future—a review of threats. *Emu - Austral Ornithology* **116**:100-110.
- Meng, D. R., B. Z. Wang. 2008. Surveys of Anatidae Birds in Tianjin Beidagang Wetland. *Journal of Economic Animal* **012**:173-176.
- Meng, Q. B. 2006. Cangzhou City Chronicles. Local Chronicles Publishing House, Beijing.
- Mo, X. Q., M. X. He, W. Q. Meng, H. Y. Li. 2020. Research on Vegetation and Plant Diversity of Beidagang Wetland. Ocean Press, Beijing.
- Moores, N., D. I. Rogers, K. Rogers, and P. M. Hansbro. 2016. Reclamation of tidal flats and shorebird declines in Saemangeum and elsewhere in the Republic of Korea. *Emu - Austral Ornithology* **116**:136-146.
- Moores, N., D. I. Rogers, R. H. Kim, C. J. Hassell, K. Gosbell, S. A. Kim, and M. N. Park. 2008. The 2006-2008 Saemangeum Shorebird Monitoring Program Report. Busan, Korea.
- Murray, N. J., P. P. Marra, R. A. Fuller, R. S. Clemens, K. Dhanjal-Adams, K. B. Gosbell, C. J. Hassell, T. Iwamura, D. Melville, C. D. T. Minton, A. C. Riegen, D. I. Rogers, E. J.



- Woehler, and C. E. Studds. 2017. The large-scale drivers of population declines in a long-distance migratory shorebird. *Ecography* **41**:867-876.
- Murray, N. J., R. S. Clemens, S. R. Phinn, H. P. Possingham, and R. A. Fuller. 2014. Tracking the rapid loss of tidal wetlands in the Yellow Sea. *Frontiers in Ecology and the Environment* **12**:267-272.
- Nandagang Wetland Nature Reserve Scientific Investigation Leading Group. 2014. Nandagang Wetland and Bird Nature Reserve Scientific Investigation Report. Hebei Normal University.
- Ofenvironment, D. 2001. Shorebirds of the yellow sea. Department of the Environment.
- Oliveira, N., and C. R. 2009. Report on population monitoring counts winter 2008 and summer 2008-09. *The Stilt* **56**:45-60.
- Olson, D. M., and E. Dinerstein. 1998. The Global 200: A Representation Approach to Conserving the Earth's Most Biologically Valuable Ecoregions. *Conservation Biology* **12**:502-515.
- Olson, D. M., E. Dinerstein, E. D. Wikramanayake, N. D. Burgess, G. V. N. Powell, E. c. Underwood, J. A. D'amico, Illanga Itoua, Holly E. Strand, J. C. Morrison, C. J. Loucks, Thomas F. Allnutt, T. H. Ricketts, Y. Kura, J. F. Lamoreux, W. W. Wettengel, P. Hedao, and K. R. Kassem. 2001. Terrestrial Ecoregions of the World: A New Map of Life on Earth. *BioScience* **51**:933-938.
- Osipova, E., M. Emslie Smith, M. Osti, M. Murai, U. Åberg, and P. Shadie. 2020. A conservation assessment of all natural World Heritage sites. Langham Press, Gland, Switzerland.
- Peng H., D. S. Melville, H. B. Peng, K. Tan, Y. Chen, and Z. Ma. 2016. Aquaculture pond banks as high-tide roosts: What physical characteristics are more attractive to shorebirds? *The Stilt*:62-65 69-70.
- Peng, H. B., Choi, C. Y., Jia, N., Melville, D. S., Tan, K., He, P., Chen, Y. and Ma, Z. J. 2014. A perfect storm? The decrease of Great Knot food at Yalu Jiang coastal wetland in the Yellow Sea, China. Presentation at the Australasian Shorebird Conference, Charles Darwin University, Darwin, Northern Territory, 20–21 September 2014.
- Piersma, T., T. Lok, Y. Chen, C. J. Hassell, H.-Y. Yang, A. Boyle, M. Slaymaker, Y.-C. Chan, D. S. Melville, Z.-W. Zhang, Z. Ma, and R. Fuller. 2016. Simultaneous declines in summer survival of three shorebird species signals a flyway at risk. *Journal of Applied Ecology* **53**:479-490.
- Qiao, Z. F., D. Y. Liu, X. N. Guo, Q. Q. Wang, J. D. Zhang. 2021. Speciation characteristics and ecological risk assessment of heavy metals in the surface sea sediments of the Changli Gold Coast Reserve. *Transactions of Oceanology and Limnology* :101-108.
- Qinhuangdao Municipal People's Government Local History Office. 2020. Qinhuangdao Yearbook. Beijing: Tuanjie Publishing House 58-63.
- Qu, T. Wei. 2011. Evaluation of the sustainable development of islands in Changhai County (MSc). Chinese Academy of Agricultural Sciences.

- Que, P., X. Mo, P. Holt, J. Liu, T. Zhao, and Z. Zhang. 2019. A summary of over forty new bird records from Tianjin Municipality, including two new records for China. *Forktail* **35**:60–65.
- Riegen A. C, Vaughan GR, Rogers K. D. 2014. Yalu Jiang Estuary shorebird survey report 1999–2010. Yalu Jiang Estuary Wetland National Nature Reserve, China and Miranda Naturalists' Trust, New Zealand.
- Shan, X., X. Jin, Z. Li, Y. Chen, and F. Dai. 2012. Fish community structure and stock dynamics of main releasing fish species in the Bohai Sea. *Progress in Fishery Sciences* 33:1-9.
- Shandong Yellow River Delta National Nature Reserve Administration. 2017. 2015-2017 Shandong Yellow River Delta National Nature Reserve Annual Monitoring Report. China Forestry Publishing House.
- Shanhaiguan District Bureau of Land and Resources Bureau of Qinhuangdao City. 2015. Research report on protection and utilization planning of Shihenan Island, Shanhaiguan District, Qinhuangdao City.
- Shanhaiguan District People's Government Local Chronicles Office. 2011. Shanhaiguan District Chronicles 1979-2004. Beijing: Local Chronicles Publishing House 90-99.
- Shao X. L., C. Chen, W. Wei, F. Q. Wang. 2015. Habitat usage of waterbirds at Wanmu ponds of North Dagang wetland of Tianjin in summer and winter. *Journal of Tianjin Normal University (Natural Science Edition)* **35**:145-148.
- Shi J. L. 2015. Study on Biodiversity assessment in Lvshunkou district, Dalian (MSc). Dalian University of Technology.
- Shi S. J. 2014. The Ecological Study of the Macrobenthos in the Bohai Sea, China (MSc). Ocean University of China.
- Shine, R., L. X. Sun, M. Fitzgerald, and M. Kearney. 2002. Accidental altruism in insular pit-vipers (*Gloydius shedaoensis*, Viperidae). *Evolutionary Ecology* **16**:541-548.
- Shine, R., L. X. Sun, M. Kearney, and M. Fitzgerald. 2010. Why do Juvenile Chinese Pit-Vipers (*Gloydius shedaoensis*) Select Arboreal Ambush Sites? *Ethology* **108**:897-910.
- Song L, G. J. Song, B. Jiang. 2017. Marine Ecological Disasters and Their Distribution in Liaoning Coastal Waters. *Fisheries Science* **36**:118-124.
- Song L, G. J. Yang, A. Li, N. B. Wang. 2011. A study on bio-ecology of the stopover site of waders within China's Yalu River. *Acta Ecologica Sinica*. 7500-7510.
- Song, L., C. Z. Zhou, N. B. Wang, Z. Q. Ma, K. Xue, J. Tian, S. Yang, Z. H. Wang, J. H. Wu. 2010. Zooplankton diversity of Liaodong Bay and relationship with oceanic environmental factors. *Marine Sciences* **34**:35-39.
- Stroud, D. A., Baker, A., Blanco, D. E., Davidson, N. C., Delany, S., Ganter, B., Gill, R., González, P., Haanstra, L., Morrison, R. I. G., Piersma, T., Scott, D. A., Thorup, O., West, R., Wilson, J. and Zöckler, C. (on behalf of the International Wader Study Group). 2006. The conservation and population status of the world's waders at the turn of the millennium.

- G. C. Boere, C. A. Galbraith and D. A. Stroud, eds :643–648. Waterbirds around the World. Edinburgh, UK: The Stationery Office.
- Studds, C. E., B. E. Kendall, N. J. Murray, H. B. Wilson, D. I. Rogers, R. S. Clemens, K. Gosbell, C. J. Hassell, R. Jessop, D. S. Melville, D. A. Milton, C. D. Minton, H. P. Possingham, A. C. Riegen, P. Straw, E. J. Wochler, and R. A. Fuller. 2017. Rapid population decline in migratory shorebirds relying on Yellow Sea tidal mudflats as stopover sites. *Nat Commun* **8**:14895.
- Sun, Li-xin, Richard, Shine, Zhao, Debi, Tang, and Zheng ren. 2006. Low costs, high output: reproduction in an insular pit-viper (*Gloydius shedaoensis*, Viperidae) from north-eastern China. *Journal of Zoology* **256**.
- Sun, S. X. 2003. Attack strategy of an ambush predator: which attributes of the prey trigger a pit-viper's strike? *Functional Ecology* **17**:340-348.
- Sun, Y. C., Y. Y. Lu, W. Wang, G. Y. Li, P. P. Li. 2020. The contribution of Chinese herpetologists to Taxonomy of the Genus *Gloydius*. *Journal of Snake (Science & Nature)* **32**:1-5.
- Suo, A. N, M. H. Zhang, Y. H. Yu, F. W. Han. 2012. Loss appraisal on the value of marine ecosystem services of the sea reclamation project for Caofeidian. *Marine Sciences* **36**:108-114.
- Tan, H. X., Z. G. Jin, F. Q. Sun. 2018. Stoichiometry characteristics of typical halophytes in Luanhe Estuary Wetland. *Bulletin of Botanical Research* **38**:956-960.
- Tan, H. X., Z. G. Jin, F. Q. Sun. 2019. Correlation between the stoichiometric characteristics of plants and soils in Luanhe Estuary Wetland. *Research of Soil and Water Conservation* **26**:68-73
- Tan, K., C. Y. Choi, H. Peng, D. S. Melville, and Z. Ma. 2018. Migration departure strategies of shorebirds at a final pre-breeding stopover site. *Avian Research* **9**.
- Tang, L. L. 2016. Wild vascular plants diversity on islands, Dalian (MSc). Liaoning Normal University.
- Wang G., X. X. Guan, K. Sun, P. X. Wang. 2019. Investigation and characteristics of bird diversity in Laotie Mountain nature reserve. *Journal of Green Science and Technology* 7-12.
- Wang, H. Z., Y. Man, X. L. Zheng. 2019. Analysis of the characteristics of time and space behavior of Changshan Islands residents during the off-season of tourism. Summary of the 2019 Annual Conference of the Economic Geography Professional Committee of the Chinese Geographical Society.
- Wang, A. D. 2018. Remote sensing monitoring of shoreline changes in the estuary section of the Yellow River estuary since the diversion of the eight branches of the Qing Dynasty in 1996. *Journal of Shandong Forestry Science and Technology* **48**:37-39.
- Wang, Bin., Z. Cao, Z. Zhang. 2008. Ecological environment evaluation on Beidagang Wetland nature reserve. *Environmental Science and Management* **33**:181–184.

- Wang, D. M., W. Gao, J. Zhao, H. T. Wang, M. Y. Liu. 2002. On the migration law of raptor in Liaoning province. *Journal of Northeast Normal University* **034**:78-83.
- Wang, G., C. Chang, D. X. Han, T. J. Bai. 2020. Temporal-spatial changes of landscape pattern and habitat quality in Laotieshan nature reserve. *Acta Ecologica Sinica*. **40**:1910-1922.
- Wang, G., X. J. Ding, X. L. Gao, H. J. Gao, L. Wang. 2020. Risk assessment of major natural hazards in Dalian City. *Geographical Research*. **29**:2212-2222.
- Wang, J., G. Z. Li. 1995. The distribution and seasonal variation of phytoplankton quantity in the waters of Changhai County. *Fisheries Science* 23-27
- Wang, L. B., P. H. Lei, M. Li, Y. W. Zhang, Y. M. Zhao. 2004. Studies on the plant community and plant resources of the Nandagang Wetland. *Journal of Hebei Normal University (Natural Science)* 514-518.
- Wang, L. P., H. W. Yu, C. Wu, X. Z. Lin, M. Du. 2007. Preliminary report on medicinal plants of Laotieshan in Liaoning. *Shelterbelt Science and Technology* **000**:44-45,48.
- Wang, L. P., P. Liu, Y. Q. Wu, L. L. Zhen, S. L. Li, W. G. Zhao. 2008. Distribution and morphological observation of argentaffine cells in digestive tract of *Gloydius shedaoensis*. *Sichuan Journal of Zoology* **27**:568-571.
- Wang, L. P., P. Liu., L. Qiu. 2007. The analysis on correlative factors of the *Gloydius shedaoensis* Zhao dendrocola distribution. *Journal of Snake* **19**:103-107.
- Wang, P. 2008. Resource of vascular plants in wetland of mouth of the Yalu River. *Journal of Eastern Liaoning University (Natural Science Edition)* 78-80.
- Wang, S. 2001. *Hebei Zoology Fish*. Hebei Science and Technology Press.
- Wang, X. 2018. Research on the development countermeasures and trends of Eco-Tourism scenic spots: Taking Lushun Laotie Mountain as an example. *Modern Commercial Industry* **39**:19-20.
- Wang, X. B., S. L. Yu, H. W. Chen. 2008. Achievements and perspective of effective management of Snake Island-Laotieshan nature reserve. *Chinese Journal of Wildlife* **29**:101-103.
- Wang, X. P., Z. Hao, S. Xu, Y. R. Wang, H. Q. Zhang. 2020. Correlation analysis between the number of dominant species of banding Passeriformes birds and the climatic factors in Dalian Laotie Mountain. *Journal of Anhui Agricultural Sciences* **48**:90-94.
- Wang, Y. R. 2019. Study on the diversity of autumn banding birds and its correlation with climate factors in Laotie Mountain, Dalian (MSc). Liaoning Normal University.
- Wang, Y., M. Ren, and D. Zhu. 1986. Sediment supply to the continental shelf by the major rivers of China. *Journal of the Geological Society* **143**:935-944.
- Wang, Y., R. Liu, H. Gao, J. Bai, and M. Ling. 2010. Degeneration Mechanism Research of *Suaeda Heteroptera* Wetland of the Shuangtaizi Estuary National Nature Reserve in China. *Procedia Environmental Sciences* **2**:1157-1162.

- Wang, Z. 2012. Talking about the countermeasures to strengthen the integrated management of the sea area——Taking Changhai County of Dalian City as an example. *China Market* 35-36
- Wang, Z. Y., Z. L. Han. 2007. Research on sustainable utilization strategy of island land resources——Changhai County, Liaoning Province as an example. *Ocean Development and Management* 31-36.
- Wen, Y. 2014. Research on changes of boundary river from Ussuri River to Yalu River based on remote sensing (MSc). Jilin University.
- Wetlands International. 2012. Waterbird Population Estimates, Fifth Edition. Wageningen, The Netherlands.
- Wong, M. H. 2004. *Wetlands Ecosystems in Asia: Function and Management* Elsevier.
- Wu Y. F., M. L. Wu, P. P. Cao. 2009. *Hebei Zoology Amphibians, Crawling, Mammals*. Hebei Science and Technology Press.
- Wu, Z. Y. 1995. *China Vegetation*. Science Press.
- Wu, Z. Y., and X. P. Wang. 1980. *China Vegetation*. Science Press.
- Wu, Z. Y., Z. K. Zhou, D. Z. Li, H. Peng, H. Sun. 2003. The areal-types of the world families of seed plants. *Acta Botanica Yunnanica* **25**:245-257.
- Xe, C. T. 2009. Historical Changes of Coastlines on West and South Coasts of Bohai Sea since 7 000 a B. P. . *Scientia Geographica Sinica* **29**:217-222.
- Xi, X. H., G. R. You, D. Y. Zhao, C. R. Kong, M. Liu. 2018. Study on construction of marine ranching in Changhai County on view of ecology. *Chinese Journal of Fisheries* 43-47.
- Xiao, D., and X. Li. 2004. Ecological and Environmental Function of Wetland Landscape in the Liaohe Delta Elsevier. *Ecological and Environmental Function* **1**:35-46.
- Xu M., Z. X. Zhu. 1995. Zooplankton in the sea area of Changhai County Hedatuozhi Sea Treasures Nature Reserve. *Fisheries Science* **14**:8-10.
- Xu, C. X. 1994. *History of Dagang District*. Tianjin Academy of Social. Sciences Press.
- Xu, C., X. 1994. *History of Dagang District*. Tianjin Academy of Social. Sciences Press.
- Xu, M. G., Y. L. Xu, and X. H. Su. 1994. The shell-mound sites on Guanglu and Dachangshan islands in Changhai county. *Acta Archaeologica Sinica* **01**:63-110+153-160.
- Yan, F. C., and Z. Q. Guo. 2005. Main ecological problems and protection countermeasures of the wetland in Liaodong Bay. *Jilin Water Resources* **05**:17-20.
- Yang, G., H. J. Cai, and L. Hou. 1995. Study on the biological characteristics of *Artemia* strains from six salt lakes in China. *Transactions of Oceanology and Limnology* **03**:39-47.
- Yang, H. 2012. Usage of tidal mudflats by red knots (*calidris canutus*) in Northern Bohai Bay as a stopover site during spring migration (PhD). Beijing Normal University, Beijing.
- Yang, H. Y. 2006. Studies on ecology of shorebirds in the coastal area of northern Bohai

- Bay(MSc). Beijing Normal University, Beijing.
- Yang, H. Y., B. Chen, M. Barter, T. Piersma, C. F. Zhou, F. S. Li, and Z. W. Zhang. 2011. Impacts of tidal land reclamation in Bohai Bay, China: ongoing losses of critical Yellow Sea waterbird staging and wintering sites. *Bird Conservation International* **21**:241–259.
- Yang, H. Y., B. Chen, T. Piersma, Z. Zhang, and C. Ding. 2016. Molluscs of an intertidal soft-sediment area in China: Does overfishing explain a high density but low diversity community that benefits staging shorebirds? *Journal of Sea Research* **109**:20-28.
- Yang, H. Y., B. Chen, Z. Ma, N. Hua, J. A. van Gils, Z.-W. Zhang, and T. Piersma. 2013. Economic design in a long-distance migrating molluscivore: how fast-fuelling red knots in Bohai Bay, China, get away with small gizzards. *Journal Of Experimental Biology* **216**:3627–3636.
- Yang, J., Y. T. Ge, and J. C. Xi. 2016. Spatial-temporal island tourismification effects differentiation of Changhai county. *Acta Geographica Sinica* **71**:1075-1087.
- Yang, X. Y., J. D. Zhang, B. Zhang, M. L. Zhou, Z. G. Jin, X. Y. Duan, G. Q. Yu, and W. M. Gao. 2018. The chemical speciation and distribution of phosphorus in sediments of the near shore in Changli. *Marine Environmental Science* **37**:16-21.
- Yang, X., J. Y. Zhang, D. B. Zhang, M. Z. Ling, Z. J. Guang, X. Duan, Yu, Y. Q. Gao, and G. M. Wang. 2018. The chemical speciation and distribution of phosphorus in sediments of the near shore in Changli. *Marine Environmental Science* **37**:16-21.
- Yin, Z. H., and F. M. Lei. 2002. A preliminary study of the breeding biology of the Chinese Egret *Acta Zoologica Sinica* **48**:824-827.
- Yin, Z., Hua, and F. Lei, Min. 2002. A preliminary study of the breeding biology of the Chinese Egret *Acta Zoologica Sinica* **48**:824-827.
- Yu, Y. M., Z. G. Dong, and R. J. Cao. 1999. The coastal wetland biodiversities at the Yalu River mouth and countermeasures for their protection. *Resources Science* **21**:57-62.
- Yu, Y., A. Suo, and N. Jiang. 2011. Response of Ecosystem Service to Landscape Change in Panjin Coastal Wetland. *Procedia Earth and Planetary Science* **2**:340-345.
- Yu, Y., M. Zhang, D. Gang, and C. J. Ran. 1999. The coastal wetland biodiversities at the Yalu River mouth and countermeasures for their protection. *Resources Science* **21**:57-62.
- Zhang, G. R., S. E. Jiang, and X. P. Han. 2006. The main characteristics of Yalujiang fault zone and its significance. *Geology and Resources* **15**:11-19.
- Zhang, H. L., F. J. Zhang, and Y. W. Zhang. 2018. Study on the Migration of Subadult *Egretta eulophotes* by Statellite Tracking at Fantuozi Island , Dalian City. *Sichuan Journal of Zoology* **37**:519-524.
- Zhang, H. Q., L. L. Tang, X. M. Zhang, X. Li, and J. Xing. 2015. Wild vascular plants diversity on five islands , Dalian. *Journal of Liaoning University(Natural Sciences Edition)* **42**:372-377.

- Zhang, H. Q., T. Y. Luan, J. C. Hao, L. L. Tang, X. H. Mu, X. P. Wang, and S. Xiao. 2017. A preliminary study on insect species diversity in Snake Island in Liaoning. *Journal of Liaoning University(Natural Sciences Edition)* **44**:171-176.
- Zhang, H. Q., Y. R. Wang, S. Xu, X. P. Wang, and Z. Hao. 2020. Analysis on the diversity and change of bird banding Passeriformes in the autumn of Laotie Mountain in Dalian. *Journal of Liaoning Normal University(Natural Sciences Edition)* **43**:70-77.
- Zhang, L. 2015. Study on land ecological security assessment and land use pattern of Caofeidian new district(PhD). Agricultural Univeristy of Herbei, Baoding.
- Zhang, R. Z. 2011. China Zoological Geography. Science Press, Beijing.
- Zhang, S. 2019. Mesozoic structural features and evolution history of the Yalu River Fault Zone and adjacent area (PhD) . Hefei University of Technology, Hefei.
- Zhang, S. D., Z. Ma, C. Y. Choi, H.-B. Peng, Q. Q. Bai, W. L. Liu, K. U. N. Tan, D. S. Melville, P. He, Y.-C. Chan, J. A. Van Gils, and T. Piersma. 2018. Persistent use of a shorebird staging site in the Yellow Sea despite severe declines in food resources implies a lack of alternatives. *Bird Conservation International* **28**:534-548.
- Zhang, S. P., and Z. W. Zhang. 2001. Heterospecific attraction of the migrating waterbirds. *Journal of the CUN(Natural Sciences Edition)* **10**:133-137.
- Zhang, S. P., J. L. Xu, Q. H. Sun, D. P. Liu, and Z. W. Zhang. 2002. The analysis of waterbird diversity in Tianjin. *Biodiversity Science* **10**:280-285.
- Zhang, S. P., Z. W. Zhang, and L. Yuan. 2001a. A large flock of oriental white stocks founded at Beidagang Reservoir in Tianjin, China. *Chinese Journal of Zoology* **36**:32-33.
- Zhang, S. P., Z. W. Zhang, and X. Y. Qin. 2003. The application of fuzzy synthetic method to the evaluation of the waterbird habitat conservation grade: A case study of Tianjin wetland. *Journal of Beijing Normal University (Natural Science)* **39**:677-682.
- Zhang, S. P., Z. W. Zhang, J. L. Xu, Q. H. Sun, and D. P. Liu. 2004. Seasonal changes and interspecific correlation among the migratory waterbird communities in Tianjin. *Acta Ecologica Sinica* **24**:666-673.
- Zhang, X. J., L. Ding, and C. H. Feng. 2014. Pollution of heavy metals in the surface sediments and potential ecological risk from Shihe Rivers in Qinhuangda. *Environmental Monitoring in China* **30**:1-5.
- Zhang, X. J., L. Ding, and C. H. Feng. 2016. Macrobenthos community and environmental factors in the middle waters of Liaodong Bay in spring. *Marine Sciences* **40**:43-48.
- Zhang, X. L. 2010. China Coastal Wetland Degradation. Ocean Press.
- Zhang, X., L. Zhang, L. Zhang, Z. Ji, Y. Shao, H. Zhou, Y. Bao, Y. Qu, and L. Liu. 2019. Comparison of rhizosphere bacterial communities of reed and Suaeda in Shuangtaizi River Estuary, Northeast China. *Mar Pollut Bull* **140**:171-178.
- Zhang, X., Z. Ji, Y. Shao, C. Guo, H. Zhou, L. Liu, and Y. Qu. 2020. Seasonal variations of soil

- bacterial communities in Suaeda wetland of Shuangtaizi River estuary, Northeast China. *J Environ Sci (China)* **97**:45-53.
- Zhang, Y. C., J. J. Hu, and C. F. Liu. 1989. Preliminary analysis of the future developing tendency and the vicissitudinous history in the coast of Bohai Sea since Holocene Series. *Bulletin of The 562 Comprehensivegeological Brigade, Chinese Academy of Geological Sciences* **00**:213-232.
- Zhang, Y. G., and Y. R. Zhang. 1997. Analysis of the economic and social system of Changshan Islands——study on the comprehensive development strategy of Changhai County, Liaoning Province. Liaoning Normal University Press.
- Zhang, Y. L., Q. S. Wang, L. W. He, X. F. Wang, and W. Y. Zhao. 2005. Water quality of South to North Transfer water in Beidagang Reservoir. *Urban Environment &Urban Ecology* **18**:24-26.
- Zhang, Y. M., X. L. Liang, Z. N. Zhao, X. Q. Han, Z. G. Jin, and W. M. Gao. 2013. The inter-annual variation trend of intertidal biodiversity in August in the ecology-monitoring area of Changli in Hebei. *Marine Sciences* **38**:34-40.
- Zhang, Y. W. 2004. Features of avian community and their relationships with habitats in Nandagang Wetland(MSc). Hebei Normal University, Shijiazhuang.
- Zhang, Y. W., J. H. Zhang, X. F. Gao, and F. L. Wei. 2001c. Study on the protection of the wetland in Nandagang. *Geography and Territorial Research* **17**:91-94.
- Zhang, Y., L. Zhang, and F. X. Liu. 2001b. Research on the Ecological Security System of Typical Islands. Science Press.
- Zhang, Z. W., W. P. Lei, L. Jin, C. H. Shang, Z. W. Chai, and X. Q. Mo. 2019. Report on status of migratory waterbirds in Tianjin Beidagang Wetland Natural Reserve.
- Zhao, W. Y., Q. S. Wang, G. P. Wu, L. B. Wu, Z. F. Sun, and L. Y. Zheng. 2005. Study on salinization of water channeled from Yellow River in Beidagang reservoir during the stored period. *Advances Inwater Science* **16**:763-766.
- Zhao, Y. M., and C. S. Song. 1995. The Yellow River Delta Nature Reserve Scientific Investigation Collection. China Forestry Publishing House.
- Zhao, Z. J. 2001. Chinese Ornithology. Jilin Science and Technology Press.
- Zhao, Z. N., Y. M. Zhang, X. L. Liang, X. Q. Han, and W. M. Gao. 2014. Evolution on degradation of Nandagang Coastal Wetland in Hebei province. *Bulletin of Soil and Water Conservation* **34**:339-344.
- Zheng, G., Mei. 2017. Catalogue of Classification and Distribution of Birds in China (Third Edition). Science Press, Beijing.
- Zheng, L. J. 2006. Research on the regional culture and development of tourism in Dandong. Dongbei Normal University, Jilin.
- Zhou, D., Z. Y. Wang, X. P. Wang, and L. X. Sun. 2015a. Conflicting analysis on the nature



- reserve human ecosystem: a case study on the Snake Island - Laotie Mountain National Nature Reserve , Liaoning , China. *Science and Technology Management Research* **35**:245-248+258.
- Zhou, J. 2020. Community structure characteristics of zooplankton in coastal freshwater wetland-a case study of Beidaihe national wetland park.
- Zhou, L. F., C. M. Li, Q. X. Chen, and Y. L. Zhang. 2013. Forecasting Analysis of Land Use Dynamic Change in Liaohe River Delta Wetlands. *Advanced Materials Research* **726-731**:3313-3319.
- Zhou, M. L., J. D. Zhang, X. Y. Yang, L. X. Sun, Y. Wang, Z. G. Jin, X. Y. Duan, G. Q. Yu, and W. M. Gao. 2015b. Distribution of nitrogen in surface sediments of the Golden Beach Ocean Nature Reserve, Changli. *Marine Environmental Science* **37**:691-698.
- Zhu, B. R., Y. I. Verkuil, J. R. Conklin, A. Yang, W. Lei, J. A. Alves, C. J. Hassell, D. Dorofeev, Z. Zhang, and T. Piersma. 2021. Discovery of a morphologically and genetically distinct population of Black-tailed Godwits in the East Asian-Australasian Flyway. *Ibis* **163**:448–462.
- Zhu, L., H. X. Liu, and X. J. Liu. 2017. The influence of groin on shoreline evolution of Shihe South Island based on GENESIS. *Journal of EMCC* **27**:36-40.
- Zhu, M. Z., W. S. Xin, and B. Zhou. 2009. *The Overall Strategy of Earthquake Prevention and Disaster Reduction in Dongying City*. China Science and Technology Press.
- Zöckler, C., E. E. Syroechkovskiy, and P. W. Atkinson. 2010. Rapid and continued population decline in the Spoon-billed Sandpiper *Eurynorhynchus pygmeus* indicates imminent extinction unless conservation action is taken. *Bird Conservation International* **20**:95-111.