Appendix 1. Threat classification scheme and sample sizes of each threat and sub-threat. Threat category totals are not the sum of the sub-categories; species may be threatened by multiple sub-categories within one threat.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Threat | Angiosperms (N = 910) | Arthropods (N = 128) | Mollusks (N = 124) | Chordates (N = 350) | Total (N=1512) |
| **Aquatic development/ modification** | **132** | **39** | **98** | **155** | **424** |
| Dams  | 27 | 8 | 74 | 109 | 218 |
| Channelization | 41 | 12 | 47 | 88 | 188 |
| Flood control | 19 | 5 | 6 | 31 | 61 |
| Water withdrawal | 48 | 27 | 37 | 61 | 173 |
| Stream modification | 1 | 1 | 1 | 8 | 11 |
| Altered hydrology | 40 | 2 | 3 | 14 | 59 |
| **Development** | **408** | **84** | **62** | **174** | **728** |
| Coastal development | 17 | 2 | 2 | 27 | 48 |
| Residential urbanization | 154 | 33 | 25 | 38 | 250 |
| Commercial urbanization | 160 | 24 | 19 | 39 | 242 |
| Recreational urbanization | 52 | 7 | 0 | 15 | 74 |
| Development/ urbanization  | 120 | 40 | 23 | 82 | 265 |
| Impervious surfaces | 0 | 1 | 4 | 3 | 8 |
| Landfills | 8 | 2 | 0 | 1 | 11 |
| Bridges | 2 | 0 | 12 | 9 | 23 |
| Roads | 147 | 27 | 39 | 103 | 316 |
| **Mining & oil/gas development** | **101** | **13** | **49** | **80** | **243** |
| Mineral mining | 18 | 0 | 5 | 7 | 30 |
| Sand & gravel mining | 31 | 7 | 32 | 23 | 93 |
| Coal mining | 3 | 2 | 15 | 16 | 36 |
| Oil & gas development | 27 | 6 | 17 | 18 | 68 |
| Quarrying | 20 | 2 | 1 | 3 | 26 |
| Unspecified mining | 34 | 0 | 2 | 31 | 67 |
| **Harvested renewable resources** | **459** | **47** | **55** | **135** | **696** |
| Agriculture | 431 | 44 | 47 | 110 | 632 |
| Aquaculture | 3 | 0 | 0 | 12 | 15 |
| Logging | 54 | 5 | 38 | 79 | 176 |
| **Non-developmental habitat alteration** | **212** | **28** | **55** | **108** | **403** |
| Dredging | 6 | 3 | 33 | 25 | 67 |
| Riparian buffer loss | 2 | 6 | 23 | 56 | 87 |
| Fire suppression | 90 | 11 | 0 | 23 | 124 |
| Vegetation removal | 81 | 10 | 1 | 12 | 104 |
| Loss of disturbance | 16 | 5 | 0 | 8 | 29 |
| Soil & substrate loss | 57 | 3 | 1 | 5 | 66 |
| Succession | 64 | 14 | 0 | 14 | 92 |
| **Anthropogenic ecosystem modification** | **77** | **9** | **0** | **10** | **96** |
| Prey loss | 0 | 9 | 0 | 9 | 18 |
| Pollinator loss | 77 | 0 | 0 | 0 | 77 |
| Indirect fishing impacts | 0 | 0 | 0 | 1 | 1 |
| **Human disturbances** | **496** | **51** | **27** | **75** | **649** |
| Vessel effects | 1 | 0 | 1 | 7 | 9 |
| Recreation | 327 | 30 | 18 | 58 | 433 |
| Trampling | 181 | 5 | 2 | 5 | 193 |
| Transient human disturbances | 6 | 0 | 0 | 7 | 13 |
| Habitat vandalism | 17 | 27 | 4 | 4 | 52 |
| Military activities  | 130 | 6 | 6 | 8 | 150 |
| **Authorized take** | **105** | **11** | **48** | **56** | **220** |
| Commercial take | 59 | 7 | 17 | 43 | 126 |
| Recreational take | 58 | 0 | 32 | 22 | 112 |
| Scientific & educational take | 53 | 4 | 14 | 6 | 77 |
| **Unauthorized take** | **44** | **7** | **23** | **46** | **120** |
| Illegal take | 10 | 4 | 2 | 27 | 43 |
| Vandalism on species | 39 | 3 | 21 | 20 | 83 |
| **Unintentional take** | **1** | **3** | **1** | **67** | **72** |
| Accidental take | 1 | 1 | 1 | 42 | 45 |
| Accidental collisions | 0 | 2 | 0 | 33 | 35 |
| **Sedimentation** | **329** | **31** | **84** | **102** | **546** |
| Anthropogenic sedimentation | 235 | 30 | 79 | 96 | 440 |
| Environmental sedimentation | 60 | 12 | 5 | 3 | 80 |
| Landslides | 202 | 18 | 0 | 6 | 226 |
| **Pesticide pollution** | **54** | **32** | **54** | **38** | **178** |
| Pesticides | 6 | 31 | 57 | 35 | 129 |
| Secondary pesticides | 7 | 0 | 1 | 0 | 8 |
| Herbicides | 51 | 12 | 31 | 13 | 107 |
| Secondary herbicides | 3 | 3 | 0 | 0 | 6 |
| Fungicides | 0 | 0 | 0 | 2 | 2 |
| **Chemical pollution** | **12** | **15** | **72** | **65** | **164** |
| Metals | 0 | 4 | 33 | 20 | 57 |
| Pharmaceuticals | 0 | 2 | 4 | 9 | 15 |
| Salts | 4 | 1 | 17 | 3 | 25 |
| Oils & greases | 1 | 1 | 21 | 8 | 31 |
| Petroleum | 3 | 1 | 1 | 7 | 12 |
| PAHs | 0 | 1 | 8 | 4 | 13 |
| PCBs | 0 | 1 | 5 | 4 | 10 |
| Miscellaneous chemicals | 3 | 2 | 1 | 11 | 17 |
| Chemical spills | 6 | 10 | 52 | 41 | 109 |
| Chemicals in sediment | 0 | 0 | 1 | 7 | 8 |
| Air pollution | 2 | 1 | 0 | 3 | 6 |
| **Nutrient pollution** | **10** | **15** | **72** | **53** | **150** |
| Fertilizers | 9 | 11 | 66 | 38 | 124 |
| Untreated wastewater | 2 | 12 | 62 | 34 | 110 |
| **Nonpoint pollution** | **2** | **20** | **70** | **73** | **165** |
| Nonpoint pollution | 0 | 0 | 47 | 22 | 69 |
| Water quality degradation | 2 | 20 | 59 | 59 | 140 |
| **Object pollution** | **75** | **22** | **1** | **19** | **117** |
| Garbage | 39 | 21 | 1 | 14 | 75 |
| Dumping | 40 | 1 | 0 | 7 | 48 |
| **Direct species interactions** | **655** | **70** | **56** | **195** | **977** |
| Competition (native) | 17 | 2 | 0 | 6 | 25 |
| Competition (nonnative) | 559 | 37 | 28 | 58 | 682 |
| Competition (unspecified) | 8 | 0 | 0 | 1 | 9 |
| Predation (native) | 1 | 11 | 17 | 54 | 83 |
| Predation (nonnative)  | 0 | 57 | 31 | 109 | 197 |
| Predation (domestic) | 0 | 1 | 0 | 20 | 21 |
| Herbivory (native) | 17 | 0 | 0 | 0 | 17 |
| Herbivory (nonnative) | 285 | 0 | 0 | 0 | 285 |
| Herbivory (domestic) | 93 | 0 | 0 | 0 | 93 |
| Hybridization (native) | 4 | 0 | 0 | 3 | 7 |
| Hybridization (nonnative) | 4 | 0 | 0 | 31 | 35 |
| Hybridization (unspecified) | 66 | 4 | 0 | 0 | 70 |
| Parasitism (native) | 0 | 6 | 0 | 2 | 8 |
| Parasitism (nonnative) | 19 | 16 | 0 | 7 | 42 |
| Parasitism (unspecified) | 19 | 1 | 0 | 10 | 30 |
| Disease (native) | 0 | 1 | 0 | 3 | 4 |
| Disease (nonnative) | 1 | 2 | 1 | 20 | 24 |
| Disease (unspecified) | 137 | 12 | 7 | 35 | 191 |
| **Indirect species interactions** | **486** | **68** | **43** | **129** | **726** |
| Secondary competition (native) | 0 | 1 | 0 | 0 | 1 |
| Secondary competition (nonnative) | 0 | 33 | 4 | 11 | 48 |
| Secondary predation (nonnative) | 3 | 0 | 4 | 0 | 7 |
| Secondary herbivory (native) | 0 | 2 | 0 | 0 | 2 |
| Secondary herbivory (nonnative) | 1 | 19 | 0 | 4 | 24 |
| Secondary herbivory (domestic) | 0 | 1 | 0 | 2 | 3 |
| Adverse habitat modification (native) | 5 | 3 | 3 | 5 | 16 |
| Adverse habitat modification (nonnative) | 424 | 54 | 28 | 53 | 559 |
| Adverse habitat modification (domestic) | 66 | 13 | 23 | 66 | 168 |
| Fire regime change (nonnative plants) | 200 | 13 | 7 | 5 | 225 |
| Vector (native) | 1 | 0 | 0 | 1 | 2 |
| Vector (nonnative) | 274 | 23 | 5 | 23 | 325 |
| Vector (domestic) | 7 | 0 | 0 | 2 | 9 |
| Algae  | 0 | 1 | 8 | 18 | 27 |
| **Severe weather** | **346** | **51** | **49** | **114** | **560** |
| Storms (exacerbated by climate change or not) | 240 | 30 | 14 | 37 | 321 |
| Drought (exacerbated by climate change or not) | 183 | 38 | 41 | 76 | 338 |
| Flooding (exacerbated by climate change or not) | 157 | 22 | 29 | 50 | 258 |
| Altered temperature (exacerbated by climate change or not) | 108 | 27 | 18 | 35 | 188 |
| Altered precipitation (exacerbated by climate change or not) | 102 | 23 | 15 | 19 | 159 |
| Snow & frost | 13 | 4 | 5 | 7 | 29 |
| **Fire** | **265** | **38** | **10** | **37** | **350** |
| Fire (exacerbated by climate change or not) | 265 | 38 | 10 | 37 | 350 |
| **Climate change impacts** | **183** | **37** | **24** | **63** | **307** |
| Climate change | 65 | 8 | 4 | 21 | 98 |
| Climate change exacerbating droughts | 85 | 16 | 14 | 27 | 142 |
| Climate change exacerbating flooding | 45 | 16 | 7 | 7 | 75 |
| Climate change exacerbating fires | 85 | 14 | 7 | 8 | 114 |
| Climate change exacerbating storms | 109 | 20 | 10 | 16 | 155 |
| Altered precipitation due to climate change | 89 | 22 | 15 | 17 | 143 |
| Altered temperature due to climate change | 106 | 26 | 13 | 33 | 178 |
| Sea level rise | 94 | 17 | 8 | 17 | 136 |
| Ocean acidification | 0 | 0 | 0 | 4 | 4 |
| Ice loss | 0 | 2 | 0 | 4 | 6 |
| Altered El Niño/La Niña cycles | 30 | 11 | 4 | 3 | 48 |
| **Few individuals** | **720** | **70** | **83** | **152** | **1025** |
| Few individuals in one population | 96 | 8 | 17 | 27 | 148 |
| Few individuals in multiple populations | 609 | 62 | 64 | 121 | 856 |
| Few populations | 252 | 33 | 26 | 18 | 329 |
| **Small range** | **663** | **112** | **111** | **215** | **1101** |
| Reduced range | 584 | 107 | 95 | 150 | 936 |
| Isolation  | 266 | 57 | 90 | 141 | 554 |
| Not in the wild | 16 | 0 | 0 | 1 | 17 |
| **Genetic/life history limitations** | **349** | **51** | **76** | **126** | **602** |
| Genetic loss | 283 | 45 | 60 | 81 | 469 |
| Inbreeding  | 93 | 20 | 23 | 22 | 158 |
| Allee effect | 1 | 1 | 0 | 7 | 9 |
| Lack of reproduction | 68 | 0 | 24 | 14 | 106 |
| Limiting life history traits | 40 | 13 | 18 | 41 | 112 |
| **Not analyzed (small sample size)** |  |  |  |  |
| Offshore development | 0 | 0 | 0 | 4 | 4 |
| Light pollution | 0 | 1 | 0 | 10 | 11 |
| Noise pollution | 0 | 0 | 0 | 6 | 6 |
| Unfavorable environmental conditions | 4 | 0 | 0 | 8 | 12 |
| Volcanoes  | 36 | 0 | 0 | 2 | 38 |
| **Not analyzed (vague)** |  |  |  |  |  |
| Unspecified habitat modification | 14 | 4 | 0 | 39 | 57 |
| Unspecified take | 49 | 16 | 14 | 25 | 104 |
| Vague agricultural pollution | 1 | 0 | 2 | 14 | 17 |
| Vague residential pollution | 0 | 0 | 0 | 5 | 5 |
| Vague industrial pollution | 0 | 2 | 22 | 14 | 38 |
| Vague mining pollution | 2 | 0 | 19 | 5 | 26 |
| Unspecified pollution | 0 | 2 | 1 | 22 | 25 |
| Unspecified nonnative species interaction | 2 | 8 | 0 | 5 | 15 |
| Unspecified environmental stochasticity | 35 | 12 | 3 | 25 | 75 |