Supplementary Material

# Table S1

The value magnitude sheet framework for mangrove resources balance sheet from 2001-2013

|  |  |  |
| --- | --- | --- |
| Item | Opening Balance | Ending Balance |
| **The value of supply service** | 8756.07 | 30280.98 |
| Raw material supply | 8419.65 | 29117.54 |
|  Feed supply | 336.42 | 1163.44 |
| **The value of regulating services** | 44999.71 | 155621.85 |
|  Regulating climate and maintaining air quality | 5049.70 | 17463.29 |
|  Regulating water resources | 6067.83 | 20984.30 |
|  Preventing coastal erosion | 33882.18 | 117174.26 |
| **The value of supporting services** | 2349.33 | 8124.68 |
| Soil fixation and fertilizer preservation | 1353.47 | 4680.69 |
|  Habitat provision | 995.86 | 3443.99 |
| **The value of cultural services** | 4107.19 | 14181.05 |
|  Leisure tourism | 3931.84 | 13597.43 |
|  Scientific research and education | 175.35 | 583.62 |

# Table S2

The value magnitude sheet framework for mangrove resources balance sheet from 2013-2019

|  |  |  |
| --- | --- | --- |
| Item | Opening Balance | Ending Balance |
| **The value of supply service** | 30280.98 | 28151.88 |
| Raw material supply | 29117.54 | 27034.32 |
| Feed supply | 1163.44 | 1117.56 |
| **The value of regulating services** | 155621.85 | 147699.1 |
|  Regulating climate and maintaining air quality | 17463.29 | 16753.27 |
|  Regulating water resources | 20984.30 | 19482.98 |
|  Preventing coastal erosion | 117174.26 | 111462.85 |
| **The value of supporting services** | 8124.68 | 7543.97 |
| Soil fixation and fertilizer preservation | 4680.69 | 4346.39 |
|  Habitat provision | 3443.99 | 3197.58 |
| **The value of cultural services** | 14181.05 | 18326.97 |
|  Leisure tourism | 13597.43 | 17677.76 |
|  Scientific research and education | 583.62 | 649.21 |

# Table S3

Mangrove resource assets physical scale

|  |  |  |
| --- | --- | --- |
| Family | Species | Area (hm2) |
| Exclusive mangroves |  |  |
| *Rhizophoraceae* | *Bruguiera gymnoihiza* |  |
|  | *Bruguiera sexangula* |  |
|  | *B. s. var. rhynchopetala* |  |
|  | *Ceriops tagal* |  |
|  | *Kandelia candel* |  |
|  | *Rhizophora apiculata* |  |
|  | *Rhizophora stylosa* |  |
| *Acrostichaceae* | *Acrostichum aureum* |  |
|  | *Acrostichum speciosum* |  |
| *Acanthaceae* | *Acanthus ebracteatus* |  |
|  | *Acanthus ilicifolius* |  |
| *Combretaceae* | *Lumnitzera littorea* |  |
|  | *Lumnitzera racemosa* |  |
|  | *Laguncularia racemosa* |  |
| *Euphorbiaceae* | *Excoecaria agallocha* |  |
| *Meliaceae* | *Xylocarpus granatum* |  |
| *Myrsinaceae* | *Aegiceras corniculatum* |  |
| *Palmae* | *Nypa fructicans* |  |
| *Rubiaceae* | *Scyphiphora* |  |
| *Sonneratiaceae* | *Sonneratia alba* |  |
|  | *Sonneratia caseolaris* |  |
|  | *Sonneratia hainanensis* |  |
|  | *Sonneratia ovata* |  |
|  | *Sonneratia paracaseolaris* |  |
|  | *Sonneratia apetala* |  |
| *Verbenaceae* | *Avicennia marina* |  |
| *Sterculiaceae* | *Heritiera littoralis* |  |
| Non-exclusive mangroves |  |  |
| *Barringtoniaceae* | *Barringtonia racemosa* |  |
| *Apocynaceae* | *Cerbera manghas* |  |
| *Bignoniaceae* | *Dolichandrone spathacea* |  |
| *Compositae* | *Pluchea indica* |  |
| *Hernandiaceae* | *Hernandia sonora* |  |
| *Leguminosae* | *Pongamia pinnata* |  |
| *Lythraceae* | *Pemphis acidula* |  |
| *Malvaceae* | *Hibiscus tiliaceus* |  |
|  | *Thespesia populnea* |  |
| *Verbenaceae* | *Premna obtusifolia* |  |
|  | *Clerodendrum inerme* |  |

# Table S4

Mangrove Resources Liability Sheet

|  |  |  |  |
| --- | --- | --- | --- |
| Project | Opening amount | Change | End of term |
| Liabilities for irrational use of resources |  |  |  |
| Cope with the cost of resource restoration |  |  |  |
| Capital investment |  |  |  |
| Manpower input |  |  |  |
| …… |  |  |  |
| Cope with resource management costs |  |  |  |
| Capital cost |  |  |  |
| Labor costs |  |  |  |
| …… |  |  |  |
| Environmental damage liabilities |  |  |  |
| Coping with environmental governance costs |  |  |  |
| Capital investment |  |  |  |
| Manpower input |  |  |  |
| …… |  |  |  |
| Coping with environmental management costs |  |  |  |
| Capital cost |  |  |  |
| Labor costs |  |  |  |
| …… |  |  |  |
| Total Liabilities |  |  |  |

The resource classification items in the physical scale, value scale and balance sheet of mangrove resources are mangrove species. However, due to the lack of statistical data of mangrove resources in China at present, only the species of mangrove resources are listed in Table 3, and there is no specific resource quantity, flow, increment, beginning and ending balance of each species. This part of work still needs to be improved in the future monitoring system and statistical work of mangrove resources. At present, there are 38 species of 26 genera in the 22 families of Chinese mangrove species, including 27 species of exclusive mangrove species belonging to 15 genera in 13 families, and 11 species of non-exclusive mangrove species belonging to 11 genera in 9 families，see table S5[1-4].

# Table S5

Balance Sheet of Mangrove Resources

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Mangrove resource types | Opening Balance | Ending balance | Mangrove resource liabilities and net assets | Opening Balance | Ending balance |
| *Bruguiera gymnoihiza* |  |  | Liabilities for irrational use of resources |  |  |
| *Bruguiera sexangula* |  |  | Cope with the cost of resource restoration |  |   |
| *B. s. var. rhynchopetala* |  |  | Capital investment |  |  |
| *Ceriops tagal* |  |  | Manpower input |  |  |
| *Kandelia candel* |  |  | …… |  |  |
| *Rhizophora apiculata* |  |  | Cope with resource management costs |  |  |
| *Rhizophora stylosa* |  |  | Capital cost |  |  |
| *Acrostichum aureum* |  |  | Labor costs |  |  |
| *Acrostichum speciosum* |  |  | …… |  |  |
| *Acanthus ebracteatus* |  |  | Environmental damage liabilities |  |  |
| *Acanthus ilicifolius* |  |  | Coping with environmental governance costs |  |   |
| *Lumnitzera littorea* |  |  | Capital investment |  |  |
| *Lumnitzera racemosa* |  |  | Manpower input |  |  |
| *Laguncularia racemosa* |  |  | …… |  |  |
| *Excoecaria agallocha* |  |  | Coping with environmental management costs |  |   |
| *Xylocarpus granatum* |  |  | Capital cost |  |  |
| *Aegiceras corniculatum* |  |  | Labor costs |  |  |
| *Nypa fructicans* |  |  | …… |  |  |
| *Scyphiphora* |  |  |  |  |  |
| *Sonneratia alba* |  |  |  |  |  |
| *Sonneratia caseolaris* |  |  |  |  |  |
| *Sonneratia hainanensis* |  |  |  |  |  |
| *Sonneratia ovata* |  |  |  |  |  |
| *Sonneratia paracaseolaris* |  |  |  |  |  |
| *Sonneratia apetala* |  |  |  |  |  |
| *Avicennia marina* |  |  |  |  |  |
| *Heritiera littoralis* |  |  |  |  |  |
| *Barringtonia racemosa* |  |  |  |  |  |
| *Cerbera manghas* |  |  |  |  |  |
| *Dolichandrone spathacea* |  |  |  |  |  |
| *Pluchea indica* |  |  |  |  |  |
| *Hernandia sonora* |  |  |  |  |  |
| *Pongamia pinnata* |  |  |  |  |  |
| *Pemphis acidula* |  |  |  |  |  |
| *Hibiscus tiliaceus* |  |  |  |  |  |
| *Thespesia populnea* |  |  |  |  |  |
| *Premna obtusifolia* |  |  |  |  |  |
| *Clerodendrum inerme* |  |  |  |  |  |
| Total assets |  |  | Total Liabilities |  |  |
|  |  |  | Total net asset value |  |  |

# References

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