

East Rennell

2020 Conservation Outlook Assessment

SITE INFORMATION

Country: Solomon Islands

Inscribed in: 1998

Criteria: (ix)



East Rennell makes up the southern third of Rennell Island, the southernmost island in the Solomon Island group in the western Pacific. Rennell, 86 km long x 15 km wide, is the largest raised coral atoll in the world. The site includes approximately 37,000 ha and a marine area extending 3 nautical miles to sea. A major feature of the island is Lake Tegano, which was the former lagoon on the atoll. The lake, the largest in the insular Pacific (15,500 ha), is brackish and contains many rugged limestone islands and endemic species. Rennell is mostly covered with dense forest, with a canopy averaging 20 m in height. Combined with the strong climatic effects of frequent cyclones, the site is a true natural laboratory for scientific study. The site is under customary land ownership and management. © UNESCO

SUMMARY

2020 Conservation Outlook

Finalised on 02 Dec 2020

CRITICAL

The remoteness of the World Heritage site, near natural conditions and small local population on the island were noted at time of inscription in 1998 as positive aspects. Logging and mining operations have since started throughout the western part of the island. Though the traditional owners have consistently confirmed their commitment to manage the East Rennell World Heritage Site for its Outstanding Universal Value, since inscription there have been concerns about a) the practical modalities of sustaining customary land tenure and cooperative decision-making; b) lack of adequate legal protection; and c) the necessity for livelihood development in order to maintain local support for conservation. The wish of the local population of Lake Tegano is to improve their living conditions through sustainable activities. Additional support for sustainable livelihoods should urgently be provided to communities to ensure protection and management of the site.

FULL ASSESSMENT

Description of values

Values

World Heritage values

► **Exceptional stepping-stone for on-going speciation processes (particularly avifauna) in the western Pacific** **Criterion:(ix)**

East Rennell demonstrates significant on-going ecological and biological processes. It is an important stepping stone in the migration and evolution of species in the western Pacific and for speciation processes, especially with respect to avifauna. Of 43 breeding land and water bird species, four species and nine subspecies are endemic to Rennell Island, with a further seven subspecies endemic to Rennell and nearby Bellona (IUCN, 1998; World Heritage Committee; 2012). Further research will probably revise these figures (Filardi et al., 2007).

► **Important site for the study of island biogeography** **Criterion:(ix)**

One of the most natural, undisturbed oceanic islands in the Pacific region, where the impacts of humans, invasive predators and weeds on the native biodiversity have been relatively small, the site is an important site for the science of island biogeography. Combined with the strong climatic effects of frequent cyclones, the property is a true natural laboratory. (World Heritage Committee, 2012).

► **High levels of endemism** **Criterion:(ix)**

For its size, Rennell Island has a high number of endemic species, particularly among its avifauna and also harbours 10 endemic plant species. The wildlife includes 11 species of bat (one endemic) and 43 species of breeding land and water birds (four species and nine subspecies endemic respectively). The invertebrate life is also rich with 27 species of land snail (seven endemics) and approximately 730 insect species, many of which are endemic. Lake Tegano, the largest lake in the insular Pacific, has 78 species of animals recorded including 12 species and one subspecies endemic to the lake. The flora of Lake Tegano is dominated by more than 300 species of diatoms and algae, some of which are endemic. The endemic Sea Krait is the second record of a sea snake living in a brackish water lake (State Party of the Solomon Islands, 1997, IUCN, 1998, World Heritage Committee, 2012).

Other important biodiversity values

► **Marine fauna**

A marine survey was initially planned to be undertaken in 2012, however, it is unclear if the results of it are available. Overall, there is little information on the marine area surrounding the World Heritage site.

Assessment information

Threats

Current Threats

Very High Threat

Logging operations in 2008 on Rennell Island (just 12 km from the inscribed eastern third of the World Heritage site, and now just 200 meters from the boundary) have initiated several highly negative effects within the property, including the reduction and transformation of forest habitat necessary for the maintenance of the bird fauna within the site. However, a recent study (HIST 2016) indicated that the

impact of logging may be limited in nature. This needs to be confirmed. The mining leases that have been granted on West Rennell have substantial impacts on the overall natural values of Rennell Island. Although the west and east of the island are somewhat geographically isolated, there will be impacts to avian fauna that rely upon the island ecosystem. Increased human populations in mining camps will also increase natural resource extraction from the island to meet food and other natural resource demands. Removal of forests to the west of Lake Tegano through mining and logging will impact natural freshwater springs and the flow of groundwater from the forested west into the east. A reduction in the amount of freshwater being generated from these springs will lead to increased salinity of the Lake over time.

► **Fishing / Harvesting Aquatic Resources**

High Threat

(Unsustainable use of native wildlife, including crabs, other aquatic resources, and possibly birds and bats)

Inside site, extent of threat not known
Outside site

Previous sustainable use of the Coconut Crab (*Birgus latro*) and other aquatic resources appears to have become unsustainable, and logging activities appear to have increased poaching of endemic, rare and threatened species of biota (IUCN, 2012).

► **Invasive Non-Native/ Alien Species**

Very High Threat

(Black Rats and all invasive species)

Inside site, extent of threat not known
Outside site

The absence of many invasive species supported the inscription of East Rennell under criterion (ix). However, rats (e.g. *Rattus rattus*) have probably been on the island for a long time (similar to other Pacific islands) and have been observed in the vicinity of log ponds and jetties and adjacent log storage areas (IUCN, 2012). A 2018 Birdlife study confirmed rats and little fire ants (*Wasmannia auropunctata*) on Rennell (Puia, 2018). All invasive species must be treated with caution on island ecosystems.

► **Changes in traditional ways of life and knowledge systems that result in negative impact, Identity/social cohesion/ changes in local population and community that result in negative impact**

Very High Threat

(Changes in local population and community)

Inside site, extent of threat not known
Outside site

The development of a cash economy and the demand for modern conveniences are forcing residents to find sources of income, which in turn increases pressure on local resources (IUCN, 2012). The sustainability of the customary governance system is in some doubt. For example, the Council of Chiefs has not met formally in many years, as the Paramount Chief lives on Guadalcanal Island (IUCN and UNESCO, 2019).

► **Logging/ Wood Harvesting**

High Threat

(Commercial logging)

Outside site

On its own, the East Rennell forest is insufficiently large to ensure the long-term survival of endemic birds (IUCN, 1998). Since 2008 logging commenced on West Rennell that has directly and indirectly impacted the feeding and breeding habitat of animals (particularly birds). Physical disturbance to soils through erosion and water quality (both surface and ground water) has occurred. Freshwater springs to the west of Lake Tegano indicate that groundwater is flowing from the forested west into the east. Removal of these western forests near the Lake through mining and logging will impact these natural freshwater springs. A reduction in the amount of freshwater being generated from these springs will lead to increased salinity of the Lake over time (IUCN Consultation, 2020). More recent remote sensing data suggests that logging has not dramatically reduced on forest coverage on West Rennell and not impacted ERWHS (HIST 2016). However, there are concerns logging will bring invasive species and possibly increased the unsustainable use of native species, as well as had cultural ramifications (IUCN, 2012). However, the Cabinet of the Solomon Islands has directed the revocation and refusal of any tree felling license within the boundaries of East Rennell (UNESCO, 2017) and the monitoring of the forest cover as an ongoing measure of management. However, logging has been approved within 200 meters of the boundary of the World Heritage site (IUCN and UNESCO, 2019).

- **Mining/ Quarrying** **High Threat**
(Commercial bauxite mining) Outside site
- In West Rennell two companies that have been issued with mining licenses to extract bauxite from their respective tenement sites (UNESCO, 2017). The operation is targeting only bauxite pocket soils deposits which apparently will have a lesser impact to the natural surrounding and ecosystems (UNESCO, 2017). The large scale of mining on a small island ecosystem will have substantial impacts to the integrity of the Rennell Island ecosystem. The assessment of impacts presented for one of the operations (UNESCO, 2017) argues that confining the operation to only the west of the island will limit ecosystem impacts. However, there is likely to be a degradation of the overall ecosystem health in the absence of appropriate planning.
- **Water Pollution** **Very High Threat**
(Oil spills and marine pollution) Inside site, extent of threat not known
Outside site
- In February 2019 a cargo ship ran aground in Kagava Bay, just outside the boundary, and began leaking the 770 tons of heavy fuel oil onboard (Williams, 2019). Thanks to international assistance and quick action, particularly from Australia and New Zealand, a catastrophe was averted. The Bay is in constant use for transshipment of bauxite, and there are few disaster response mechanisms in place, thus another accident is a high risk (UNESCO, 2019).
- **Other** **High Threat**
(Lack of alternative income generating alternatives to commercial logging and mining) Inside site, localised(<5%)
Outside site
- The 2019 reactive monitoring mission found that the real long-term threat to the Outstanding Universal Value (OUV) of the World Heritage site is the lack of alternative income generating alternatives to commercial logging and mining. Without sustainable livelihoods, local support for the World Heritage designation (and as such the temporary ban on commercial logging and mining) will erode. Tourism, albeit not a magical solution, is one alternative due to the splendid nature of the site and the very basic tourism-infrastructure already present. Currently almost no tourists visit the property; a limited number of tourists could generate a flow of cash sufficient to counterbalance the allure of commercial logging and mining to the ~1,000 residents of East Rennell. (IUCN and UNESCO, 2019). UNESCO received a petition to withdraw the customary land of one tribe from the World Heritage site (UNESCO, 2018). The petition may not have been authorized and has been retracted, but points up the precarious state of local support (UNESCO, 2019).
- **Ocean acidification, Temperature extremes** **High Threat**
(Coral bleaching stress) Inside site, extent of threat not known
- East Rennell World Heritage Site's coral reefs have experienced bleaching stress in the period 2014-2017. It will experience annual severe bleaching, and thus will cease to host functioning coral reef ecosystems, by the end of the century unless CO2 emissions are reduced. (Heron, et al. 2017).

Potential Threats

High Threat

The potential introduction of invasive alien species such as Giant African Land Snail would have very negative effects on the biodiversity of the World Heritage site. Mining is reported to be confined to West Rennell outside the boundaries of the site, however without long-term legal protection resource extraction within the site is a potential threat.

- **Mining/ Quarrying** **High Threat**
(Mining) Inside site, extent of threat not known
- Prospecting for bauxite occurred in East Rennell in the early 1970s, but there are no mining leases in the World Heritage site (UNESCO, 2017). The community, through the Lake Tegano World Heritage Site Association (LTWHSA), has for now ruled out mining within the boundaries of the site in East Rennell

(State Party of Solomon Islands, 2017). However, it is also the responsibility of the international community to ensure that other benefits, e.g., tourism, alternative livelihood generation, etc, are enabled for the local community to ensure that they have alternatives to mining.

► **Invasive Non-Native/ Alien Species**

(Invasive Giant African Land Snails)

Data Deficient

Inside site, extent of threat not known
Outside site

There is potential for Giant African Land Snails (*Lissachatina fulica*) that have been seen in Honiara (Guadalcanal Island) to gain access to Rennell Island on shipments of food and other produce, and these aggressive invaders could have a destructive impact on crops and other vegetation and would compete with the 27 species of native land snails (IUCN, 2012).

Overall assessment of threats

Very High Threat

The local communities with customary stewardship of the East Rennell World Heritage site must be congratulated for their commitment to protect and manage the site and maintain its Outstanding Universal Value. However, bauxite mining is now widespread in West Rennell. Logging has been approved within 200 meters of the boundary. East Rennell's Lake Tengano is also threatened by sea level rise and increased salinity, which has caused the local population to develop unsustainable practices. World Heritage inscription has not delivered promised livelihood incentives to local communities. The real long-term threat to the Outstanding Universal Value of the site is the lack of alternative income generating alternatives to commercial logging and mining coupled with ineffective enforcement of current legislation to protect the environment. There remains an urgent need to support local communities and mobilize resources to support management of the site.

Protection and management

Assessing Protection and Management

► **Management system**

Serious Concern

The Lake Tegano World Heritage Site Association (LTWHSA) elects community members as the local management authority. It therefore derives its authority from the customary governance structure. However, the LTWHSA lacks basic administrative and technical capacity. This lack of capacity is compounded by the fact that the LTWHSA lacks a permanent office base from which to operate (IUCN Consultation, 2020). The communities need greater representation within Rennell-Bellona Province to advocate on behalf of the people and the World Heritage site (IUCN, 2012).

► **Effectiveness of management system**

Serious Concern

A previous Management Plan (Wein, 2007) was never implemented and it was not resourced (IUCN, 2012; Clair Price, 2018). Developing and revising the Management Plan has been considered a key milestone in the registration process of the East Rennell World Heritage site becoming a protected area under the Protected Areas Act. This is a planned action and indicator in the DSOCR (UNESCO, 2017) but is still unfinished (IUCN and UNESCO, 2019). Knowledge of the natural ecosystems, species and habitats is insufficient and needs further survey and assessment, especially in the marine areas. Cultural resources and values are also not well known and there is a need for systematic cataloguing and documentation of cultural values and traditional resource use and conservation practices (IUCN, 2012). Biodiversity indicators of ecosystem health need to be established and monitored. The establishment of a permanent management office for the LTWHSA would enable the retention in a central place of all documents critical to the on-going management of the site (IUCN Consultation, 2020).

► **Boundaries**

Serious Concern

The boundaries of the World Heritage site have never been sufficient as the forest in East Rennell is not sufficiently large to ensure long-term survival of the endemic birds. However, inscription of the entire island was not proposed as local communities on West Rennell were not favourable to being included in the nomination (IUCN, 1998). There is no buffer zone (apart from the 200m no-logging buffer), and the exact land boundary is uncertain (IUCN and UNESCO, 2019). However, negotiations to have the community located just outside the boundary (Abataihe) join the LTWHSA are salutary.

► **Integration into regional and national planning systems**

Some Concern

A Cabinet Paper was prepared (State Party of the Solomon Islands, 2017) and directed the Ministry of Environment, Climate Change, Disaster Management and Meteorology (MECDM) to consult with landowners including the LTWHA and relevant stakeholders to register East Rennell World Heritage site as a protected area under the Protected Area Act 2010. That work remains unfinished, and a new commitment and new Cabinet Paper are called for in the 2019 World Heritage Committee decision (World Heritage Committee, 2019).

► **Relationships with local people**

Serious Concern

East Rennell was the first inscribed World Heritage site with customary ownership land tenure. Land is vested in the clan and all clan members have access to land through their lineages. East Rennell communities are patrilineal with land passing down through the male line. The Lake Tegano World Heritage Site Association (LTWHSA), consists of elected community members (which can be women), who act as the local management authority. There is a great need for capacity building and external funding to ensure that the World Heritage site is managed at WH standard (IUCN, 2012). In 2017, a roundtable convened by the government identified several measures ((1) promoting ecotourism, (2) developing sustainable livelihood projects, (3) banning logging in East Rennell and (4) upgrading airstrips and roads. So far, however, none of these recommendations has been implemented by the government (Boso, et al., 2018). The people of East Rennell (~1,000) are still in majority support of having Lake Tegano as a World Heritage Site (State Party of the Solomon Islands, 2019), but that support is strained by the lack of sustainable livelihoods they expected to result from inscription (IUCN and UNESCO, 2019).

► **Legal framework**

Serious Concern

At the time of inscription there was no adequate national or provincial legislation for protecting the site. The site is not yet protected under the Protected Areas Act 2010, and the legislation is vague on the approvals required. The 2019 World Heritage Committee decision requests that the State Party clarify the consent provision, particularly as to what "interested parties" need to be involved (UNESCO, 2019). Land tenure is often contested, as customary ownership gives way to individual claims. Another decision request is for the State Party to consider registering and surveying all lands under the Registration of Customary Lands Act, as disputes have stymied basic infrastructure development such as a communications tower (IUCN and UNESCO, 2019). The draft provincial Lake Tegano Heritage Park Ordinance 2009 is on hold, and may not be significant. Other legislation such as the Environment Act 1998 and the Wildlife Management and Protection Act 1998 have provisions relevant to the World Heritage site, but these are often not effectively enforced at local level, and there is some uncertainty as to the relative powers of national and customary laws in respect to land and resources under customary ownership and traditional management (IUCN, 2012).

► **Law enforcement**

Some Concern

The mechanisms for enforcement of relevant national laws are not clear. Customary management systems remain in place but there is no conventional enforcement capacity. A need for rangers was identified several times to the reactive monitoring mission team but no such position has ever been filled (IUCN and UNESCO, 2019).

► **Implementation of Committee decisions and recommendations** **Serious Concern**

While the 2016 Cabinet Paper documents the Solomon Islands Government's (SIG) commitment to East Rennell, and "the development of alternative income generating mechanisms remains a top priority" (State Party of the Solomon Islands, 2018), little has been achieved. Similarly, little of the 2016 Desired State of Conservation (DSOCR) for the World Heritage site and its four-year action plan (e.g. the adoption of a management plan and funding to implement it allocated by the SIG) has been achieved.

► **Sustainable use** **Serious Concern**

The draft management plan (Wein, 2007) includes the sustainable management of coastal and marine resources, suggesting establishment of marine protected areas where a ban or restrictions on harvest are imposed; introduction of community-based monitoring and enforcement programs supervised by rangers; increased awareness of regulations and sustainable harvesting methods; use of by-laws to discourage destructive fishing methods; and survey and inventory of reef resources. While the plan is well-directed in principle, it has never been implemented and there is no evidence that resources will be provided by the State Party for this to occur (IUCN, 2012; IUCN and UNESCO, 2019).

► **Sustainable finance** **Serious Concern**

The community receives no financial support from the national budget of the Solomon Islands government, and only a small annual contribution from the province. Essentially, it relies for its funding on the World Heritage Fund and on other external sources, especially donor funding from international governments and non-government organisations. This funding is not sustainable, it is short-term only and comes in pulses, and it is tagged to specific programmes and projects. The local community urgently requires income generation initiatives, including tourism, as an economic incentive to continue to prohibit logging and mining of the area. The balance between meeting "world heritage conservation" objectives and the income needs of local communities for daily sustenance and family needs need to be balanced. Communities will benefit from development of appropriate well-resourced and operated small business enterprises (IUCN, 2012). Long-term sustainable funding is required to assist the customary owners of East Rennell to manage the site to World Heritage standards. There is a widely held, mistaken belief within the communities that the State Party receives funds from UNESCO to manage the site (IUCN and UNESCO, 2019).

► **Staff capacity, training, and development** **Serious Concern**

The LTWHSA has no staff or dedicated management capacity. Officers and members of LTWHSA, the management authority, are all volunteers. The chairperson, for example, is a full-time schoolteacher. The State Party focal point for World Heritage has other duties at the Ministry of Environment and is based in Honiara. A need for rangers was identified several times to the mission team but no position has ever been filled. Thus management capacity for the site has changed little since inscription (IUCN and UNESCO, 2019). The process of twinning of the East Rennell and Wet Tropics properties begun in 2009 but is not active. SPREP and other Pacific Regional Agencies could also play a role in capacity building for management.

► **Education and interpretation programs** **Serious Concern**

None

► **Tourism and visitation management** **Serious Concern**

There had been plans to improve the runway and invest in tourism (State Party of the Solomon Islands, 2017) but they have never been realized. This is considered by local people as vital to the long-term management and integrity of the site. However, it is now unlikely these will be priorities in the short-term given the suppression in global tourism due to the COVID-19 pandemic.

► **Monitoring**

Serious Concern

No systematic reporting recorded (UNESCO, 2017), though some remote sensing has been employed (Wang, et al., 2018). The 2019 World Heritage Committee Decision calls on the State Party to "continue and expand the recently started bird monitoring program, and seek international support to mitigate the effects of invasive species" (World Heritage Committee, 2019).

► **Research**

Some Concern

Important research expeditions have occurred on the island (IUCN, 2012). The management plan (Wein, 2007) proposes the development of a research contract to guide research in East Rennell and to ensure that the results of all research are available to the management authority and communities. The CEPF is a useful source of funds for both research and action for the site. However, to-date funds have not been secured (State Party of the Solomon Islands, 2017). The 2019 World Heritage Committee Decision calls on the State Party to "develop a scientific research programme at Lake Tegano, seeking support from the international research community and also incorporating traditional ecological knowledge" (UNESCO, 2019).

Overall assessment of protection and management

Serious Concern

East Rennell World Heritage site is managed by the local community under a customary tenure and governance system. However, with increasing global pressures, the community does not possess the necessary resources and capacity to protect and manage the site to World Heritage standards. The resident population in the site is steadily declining and experiencing significant social change. The site is not yet incorporated into the national protected area system through the Protected Areas Act and thus lacks formal government recognition bestowed on such areas by the Act. A 2016 Cabinet decision documented the Government of the Solomon Islands' commitment to the site but few practical actions resulted. The 2017 State of Conservation report also presented a Desired State of Conservation (DSOCR) for the site. The DSOCR is a useful document, however, although a 4-year timetable is provided, specific intermediate milestones are not provided and few major milestones have been achieved by 2020. The requests by the World Heritage Committee — annual since 2012 — and the actions in the DSOCR (2017) need to be implemented to secure the effective management of the site. The 14 requests in the 2019 World Heritage Committee Decision provide further guidance.

► **Assessment of the effectiveness of protection and management in addressing threats outside the site**

Serious Concern

The communities in East Rennell maintain majority support for the protection and management of the ERWHS; however, their efforts need additional support to maintain the OUV of the site. Resource exploitation in the connected but geographically isolated West Rennell poses threats to the integrity of the overall island ecosystem values, however the threats to the site, i.e. logging and mineral extraction, need to be minimised and mitigated through effective management and legal protection. It is vital that resources are provided to traditional owners of the site to ensure local communities are empowered and provided resources to manage and maintain the OUV of the site. The DSOCR (2017) is a very important step in this process and needs to be supported and resourced, but the timeframe for its implementation should now be reassessed (IUCN and ICOMOS, 2019).

► **Best practice examples**

East Rennell is notable as the very first World Heritage site to be inscribed where the resources of the land and sea are under customary ownership and managed using traditional practices. It is important that local communities are supported to manage the site not only to their standard, but to a standard to support OUV, and they are to be commended for their stewardship to date, despite the challenges they face.

State and trend of values

Assessing the current state and trend of values

World Heritage values

► **Exceptional stepping-stone for on-going speciation processes (particularly avifauna) in the western Pacific**

High Concern
Trend:Deteriorating

The recent threats caused by logging operations on the island outside of the inscribed area (e.g. loss of habitat, changes in soil erosion and run-off, introduction of Black Rats (IUCN, 2012) indicate that the conditions required for on-going speciation processes appear to be compromised. However, recent studies (HIST 2016; Wang, et al., 2018) indicate that at least the forests and forest cover is largely intact in the site. Full evaluation of impacts of the oil tanker MV Solomon Trader accident are still pending, but contamination of the World Heritage site might have been prevented by a quick response by international assistance and salvage operators (IUCN and UNESCO, 2019).

► **Important site for the study of island biogeography**

Low Concern
Trend:Stable

Any banalisation of the native flora and fauna due to invasive species and unsustainable practices will reduce the importance of the site as an important site to study island biogeography. However, as this will require long-term change, the current trend for this value remains stable.

► **High levels of endemism**

Data Deficient
Trend:Data Deficient

Data deficient

Summary of the Values

► **Assessment of the current state and trend of World Heritage values**

High Concern
Trend: Data Deficient

There is no current field based information to evaluate the current status of the conditions for the site to remain “an outstanding example representing significant on-going ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals”. Recent studies (HIST, 2016; Wang, et al., 2018) indicate that the forests and forest cover is largely intact in the site. While there are some concerns of component parts of its ecosystem in decline, more monitoring is needed to determine the overall trend.

► **Assessment of the current state and trend of other important biodiversity values**

Data Deficient
Trend: Deteriorating

Important biodiversity values which include birds, plants, bats, and aquatic fauna and flora require monitoring to determine trends.

Additional information

Benefits

Understanding Benefits

► **Fishing areas and conservation of fish stocks,
Traditional agriculture**

Resources from the World Heritage site, including introduced tilapia, clams, trochus (sea snail), reef fish, coconut crabs, coconuts and yams which provide subsistence and some cash income to 4 small villages of approximately 350 people residing in the site, a high proportion of which are women, older men and children (IUCN, 2012).

► **Outdoor recreation and tourism**

Very limited benefits from tourism have been realised given lack of infrastructure and management. However, benefits from tourism were expected once the site was inscribed as World Heritage, and the potential is there.

► **Soil stabilisation**

Natural forest protects slopes and groundwater from erosion and sedimentation.

► **Importance for research**

Rennell Island has been the subject of eight international scientific expeditions, with numerous descriptions of new species and seminal work on island biogeography (e.g. Diamond, 1984).

Summary of benefits

East Rennell provides a global environmental service by protecting a unique store of island biodiversity. It is an exceptionally well-preserved island ecosystem conserving unique, endemic species that has contributed to global scientific theory. Yet traditional owners are bearing the cost of maintaining these values, through forgoing other economic opportunities, i.e. logging and mining, that although environmentally negative would provide more household income and wealth. It is important that other benefits can be provided to those local communities that forgo these opportunities. Investments are urgently required in infrastructure, economic activities and tourism to ensure that some benefits accrue to communities protecting the Outstanding Universal Value of the site.

REFERENCES

No References

- 1 Boso D, Vave-Karamui A, Masu R, Boseto D, Mauli S, Gomeses C and van der Ploeg J. (2018). Proceedings of the 1st Solomon Islands resource management symposium: A decade of learning. Honiara, Solomon Islands: WorldFish. Proceedings: 2018-11.
- 2 Clair Price, S. (2018). World Heritage Conservation in the Pacific: The Case Study of Solomon Islands. Palgrave Series in Asia and Pacific Studies. Singapore: Springer Nature. [online] Available at: <http://dlib.scu.ac.ir/bitstream/Hannan/560351/1/97898113060...> (Accessed 21 October 2019).
- 3 Diamond, J.M. (1984). The Avifaunas of Rennell and Bellona Islands. The Natural History of Rennell Islands, British Solomon Islands 8:127-168.
- 4 Dingwall, P.A. (2012). East Rennell (Solomon Islands). Report of the reactive monitoring mission 21-29 October 2012.
- 5 Filardi, C.E., Boseto, D. and Filardi, C.E. (2007). A preliminary desk study identifying important bird areas (IBAs) in the Solomon Islands. Draft for restricted circulation only. Prepared for BirdLife International.
- 6 GIZ/ SPC (2013). REDD Feasibility Study for East Rennell World Heritage Site, Solomon Islands. International Climate Initiative - Regional project Climate Protection through Forest Conservation in Pacific Island Countries
- 7 HIST 2016 - Report of the technical consultation meeting on East Rennell World Heritage Site in Danger. Organised by International Centre on Space Technologies for natural and cultural heritage (HIST) under the auspices of UNESCO Beijing, China, support by the Netherlands funds-in-trust at the UNESCO World Heritage Centre, Paris, held Sonya, Hainan Province, China, 1-2 February 2016.
- 8 Heron, S.F., Eakin, C.M., Douvère, F., Anderson, K.L., Day, J.C., Geiger, E., Hoegh-Guldberg, O., Van Hoodonk, R., Hughes, T., Marshall, P. and Obura, D.O. (2017). Impacts of climate change on World Heritage coral reefs: A first global scientific assessment. Paris, France: UNESCO World Heritage Centre.
- 9 IUCN (1998). IUCN Technical Evaluation East Rennell (Solomon Islands).
- 10 IUCN and UNESCO. (2019). Reactive Monitoring Mission Report East Rennell (Solomon Islands). Gland, Switzerland and Paris, France: IUCN and UNESCO World Heritage Centre. [online] Available at: <https://whc.unesco.org/en/list/854/documents/> (Accessed 21 October 2019).
- 11 Live and Learn (2013) - The Protected Areas Project Final report on work done towards setting up a Protected Area at the East Rennell World Heritage Site by Stephanie Price for Live and Learn Environmental Education. September 2013
- 12 Nomination (1997). East Rennell, Solomon Islands. Nomination for inclusion in the World Heritage List natural sites. Government of the Solomon Islands.
- 13 Periodic reporting (2011). World Heritage Centre.
- 14 Puia, M. (2018). 'Birdlife eager to roll project in East Rennell', The Island Sun, Honiara, Solomon Islands, 8 February. Available at: <http://theislandsun.com.sb/birdlife-eager-roll-project-east...> (Accessed 16 May 2019).
- 15 Puia, M. (2018). 'New invasive species reaches Rennell', The Island Sun, Honiara, Solomon Islands, 30 November. Available at: <http://theislandsun.com.sb/new-invasive-species-reaches-ren...> (Accessed 16 May 2019).
- 16 SOC (2013). State of Conservation report by the State Party.

No **References**

- 17 SOC (2017) State of Conservation Report by State Party including draft Desired state of conservation for the removal of the property from the List of World Heritage in Danger (DSOCR)
-
- 18 SoOUV (2012). East Rennell (Solomon Islands) Statement of Outstanding Universal Value. <http://whc.unesco.org/en/list/854/documents/>
-
- 19 State Party of the Solomon Islands. (2018). Report of the State Party to the World Heritage Committee on the state of conservation of the East Rennell (Solomon Islands). [online] State Party of the Solomon Islands. Available at: <https://whc.unesco.org/en/list/854/documents/> (Accessed 21 October 2019).
-
- 20 State Party of the Solomon Islands. (2019). Report of the State Party to the World Heritage Committee on the state of conservation of the East Rennell (Solomon Islands). [online] State Party of the Solomon Islands. Available at: <https://whc.unesco.org/en/list/854/documents/> (Accessed 21 October 2019).
-
- 21 UNESCO World Heritage Centre. (2019). Concern for oil spill, East Rennell, Solomon Islands, in Central Pacific. UNESCO, Paris, 4 March. Available at: <https://whc.unesco.org/en/news/1938/> (Accessed 16 May 2019).
-
- 22 UNESCO World Heritage Centre. (2019). Update on East Rennell oil spill, Solomon Islands, UNESCO, Paris, 4 April. Available at: <https://whc.unesco.org/en/news/1948> (Accessed 16 May 2019).
-
- 23 UNESCO. (2018). Report on the State of Conservation of East Rennell, Solomon Islands. State of Conservation Information System of the World Heritage Centre. [online] Paris, France: UNESCO World Heritage Centre. Available at: <https://whc.unesco.org/en/soc/3805> (Accessed 21 October 2019).
-
- 24 UNESCO. (2019). Report on the State of Conservation of East Rennell, Solomon Islands. State of Conservation Information System of the World Heritage Centre. [online] Paris, France: UNESCO World Heritage Centre. Available at: <https://whc.unesco.org/en/soc/3838> (Accessed 21 October 2019).
-
- 25 Wang, M., He, G., Ishwaran, N., Hong, T., Bell, A., Zhang, Z., Wang, G. and Wang, M. (2018). Monitoring vegetation dynamics in East Rennell Island World Heritage Site using multi-sensor and multi-temporal remote sensing data. *International Journal of Digital Earth*, pp.1-17.
-
- 26 Wein, L. (2007). East Rennell World Heritage Site Management Plan. In partnership with the East Rennell World Heritage Trust Board and East Rennell communities and on behalf of the Solomon Islands National Commission for UNESCO.
-
- 27 Williams, J. (2019). 'Oil Spill Threatens a Treasured Coral Atoll in the Pacific', *The New York Times*, New York, 6 March. Available at: <https://www.nytimes.com/2019/03/06/world/australia/solomon-...> (Accessed 16 May 2019).