This national park, located in the extreme south-western tip of Java on the Sunda shelf, includes the Ujung Kulon peninsula and several offshore islands and encompasses the natural reserve of Krakatoa. In addition to its natural beauty and geological interest – particularly for the study of inland volcanoes – it contains the largest remaining area of lowland rainforests in the Java plain. Several species of endangered plants and animals can be found there, the Javan rhinoceros being the most seriously under threat. © UNESCO

The values for which Ujung Kulon National Park (UKNP) was inscribed on the World Heritage List are all still present, however, based on the situation on the ground and the assessment of the current state, some of the values of UKNP appears to be of high concern.

Management is considered to be mostly effective, and has for at least the past two decades succeeded in completely averting Rhino poaching. However, the current situation of the Javan Rhino as a species is considered to be critical, and urgent and significant management intervention is required to ensure that its population is able to grow, including through the establishment of a second population elsewhere in its historic range.

The main threat to the Rhino is the overabundance of the palm Arenga obtusifolia (Langkap). Experiments to control Arenga in the Javan Rhino Study and Conservation Area (JRSCA) are starting to show positive results, and in 2019 more than 200 hectares had been subject to control measures. The extent to which Arenga obtusifolia represents a threat to UKNP's other World Heritage values is uncertain and data remain sparse. Recent research indicate that the spread and overabundance of Arenga is impacting on critical habitats for rare plant species, for instance Kokoleceran (Vatica bantamensis), which is an endemic tree found only in UKNP.

The biggest potential threat stems from the high volcanic activity of Anak Krakatau triggering devastating tsunamis and a rescue plan for the Javan Rhino should be prepared. In addition, the invasion and spread of disease from water buffalos (Bubalus bubalis) into the Park poses a substantial health risk to the Javan Rhino and threatens plans to establish a new the population outside of its only current range in UKNP. It could be one of the major potential threats for Javan Rhino in the future. Nevertheless, UKNP remains a stronghold
and the only hope for the survival of this species, which is being well protected.
FULL ASSESSMENT

Description of values

Values

World Heritage values

▸ Most extensive lowland rainforest remaining on Java  
World Heritage Committee, 2014).

▸ Critical habitat for threatened animal species  

▸ Critical habitat for rare plant species  

▸ Landscape of exceptional beauty  

▸ Stronghold for Javan Rhinoceros  

Assessment information

Threats

Current Threats

The threat from encroachment and other illegal activities is relatively low, although the impacts of
poaching, buffalo grazing and illegal shrimp fry collection have not been sufficiently quantified. Illegal activities could be addressed through strengthened regulation and strategic law enforcement actions by the UKNP Management Authority. The most significant current threat to the site is the overabundance of Arenga obtusifolia palm, which results in reduced availability and diversity of habitats for threatened species. Javan Rhinoceros is particularly sensitive to this threat. The Rhino population in Ujung Kulon NP has been very small for many generations, and has been isolated for at least 80 years, which may be causing a lower than normal reproductive success rate as a result of inbreeding depression. The threat to the marine portion of the site from destructive fishing methods and other illegal fishing is also of some concern.

**Mining/Quarrying**

*(Sand harvesting)*  
Low Threat  
Inside site, localised(<5%)

There is a demand for high quality sand from Anak Krakatau, to be used as construction material. Anak Krakatau is easily accessible by sea, making it difficult to control sand exploitation (IUCN Consultation, 2014b). The current level of impact from this activity is unclear. However, in 2015 a decision was made by the DG Forest Protection and Nature Conservation (now, DG Conservation of Natural Resources and Ecosystem) and agreed by the Ministry of Forestry (MoF) to not allow sand exploitation. The decision was based on the field surveys and analysis, which found that exploitation was not only breaking the conservation law, but would also disturb activities that had been done related to volcanic activity and forest succession in Krakatau islands as a whole (IUCN Consultation, 2020).

**Fishing/Harvesting Aquatic Resources**

*(Destructive and illegal fishing)*  
Low Threat  
Inside site, extent of threat not known  
Outside site

Dynamite fishing and other unsustainable fishing methods disturb the integrity of healthy coral reefs and the marine ecosystem (IUCN Consultation, 2014b). Fishing is permitted close outside the boundaries of the Park, but illegal fishing occurs in the marine portion of Ujung Kulon National Park. Recent studies have shown there is evidence of bomb fishing such as crates from blasts, coral rubble or bleaching both around Peucang Island (Gumbira et al., 2017) and Panaitan Island (Putra et al., 2019), leading to decreased coral reef coverage at depth between 5 and 10 m. Since early 2020, there is an additional Rhino Protection Unit (RPU) that focuses on marine patrolling, supported by the Rhino Foundation of Indonesia in cooperation with UKNP Management Authority. This program was established to effectively reduce illegal fishing and unsustainable fishing in Ujung Kulon NP. All the fishing platforms that usually utilize the area of Ujung Kulon NP have been identified and registered. So far, the RPU marine team only patrol the area around North Ujung Kulon Peninsula. However, Yudha et al. (2019) found that coral reef and fish species richness diversity and abundance at the Core Zone were higher than in the marine protection zone.

**Hunting and trapping**

*(Poaching)*  
High Threat  
Inside site, scattered(5-15%)  
Outside site

According to Sadjudin (1999), many of the 270 bird species found in Ujung Kulon NP have a high market value. Bird poaching is therefore a common practice in the Park. Other species targeted by poachers may include small mammals, such as mouse deer, banteng and Green Turtle (Chelonia mydas), although no records are available (IUCN Consultation, 2020). These illegal activities can be controlled by intensive patrols and alternative livelihood provided to the surrounding communities (IUCN Consultation, 2014b). There have been no incidents of Rhino poaching in Ujung Kulon NP for at least 22 years.

**Housing/Urban Areas**

*(Forest encroachment due to human population growth)*  
Low Threat  
Inside site, localised(<5%)  
Outside site

The Honje Mountains, which form the mainland portion of Ujung Kulon National Park and which are connected to the Peninsula by a narrow isthmus, are fully surrounded by 19 buffer villages and the community’s livelihood pattern depended on the Park, each consisting of a number of kampongs (Andre et al., 2018). While the villages and their agricultural fields are mostly located outside the boundaries of the site, two kampongs (including their agricultural fields) are partially or completely located within the
boundaries, namely Ciakar and Legon Pakis, respectively (Van Merm, 2008). The rate of encroachment is relatively low, but grew from 400 hectares in 1990 to 3,436 hectares in 2008. Although no more recent data is available, this trend could have been halted or at least slowed with the development of the Javan Rhino Study and Conservation Area (JRSCA) which commenced 2010-2011 (IUCN Consultation, 2014b).

A new regulating Zonation policy of UKNP has been in place since 2011, where some agricultural activities are allowed in the Traditional Use Zone. Overall, these activities are controlled by the Park rangers of Honje Mountain and the limited equipment used is not harming the environment (IUCN Consultation, 2020). The zonation of UKNP was reviewed and revised in 2017 through public consultation, and agreed by the DG of Conservation of Natural Resources and Ecosystem (No. SK. 78/KSDAE/KSA.0/2017). The pristine forest of Honje Mountain is legally designated as Core Zone, while other forested areas belong to the Wilderness Zone. Other zones include the Rehabilitation Zone (areas of key wildlife habitat and/or hydrological importance); the Traditional Use Zone (where the land is partly cultivated); and the Special Zone (50ha) where there are some local settlements (IUCN Consultation, 2020).

Tree cutting, hunting wild animals and cultivation is banned within the Wilderness and Rehabilitation Zones, which is enforced by the Park rangers. Issues can often be solved through coordination with head of villages and key local elders, although sometimes these problems need the local police to take further action for investigation and prosecution (IUCN Consultation, 2020). Problems have also occurred with local buffalo owners (IUCN Consultation, 2020).

### Problematic Native Species

**Arenga obtusifolia palm and negative impacts on diversity**

Arenga obtusifolia, locally known as Langkap, is a native palm species that is overabundant in Ujung Kulon National Park. In 2007 it was estimated that Langkap covered around 60% of the Ujung Kulon Peninsula (Ministry of Forestry, 2007), and it is likely to have spread further since. It out-competes most other plants by forming a dense canopy where very little light penetrates, and is a significant threat to the Javan Rhino by reducing the availability of habitat and food plants. This negative impact of Langkap on plant diversity is closely related with poor light under its canopy as more than 95% of the light will be absorbed before reaching the forest floor (Van Merm, 2007; Robiansyah, 2019a). It is also likely to have a significant impact on the habitat of other species of animals and plants (Robiansyah, 2019b).

Experiments are currently being undertaken to remove stands of Langkap and stimulate regeneration of Rhino food plants. According to the 2014 IUCN World Heritage Outlook, these activities were restricted to a number of sample plots within the Javan Rhino Study and Conservation Area (JRSCA), and were starting to show positive results (IUCN Consultation, 2014a). If proven successful, urgent action should be taken to replicate these methods throughout the National Park in order to control the spread of Langkap. The activity to control Langkap on the Ujung Kulon Peninsula has been conducted since 2015. So far until the end of 2019, more than 200 hectares of Langkap has been controlled in JRSCA by manual techniques. However, the Park’s forest cover, spread of Langkap in Ujung Kulon Peninsula and how it affects Rhinos need to be further monitored (IUCN Consultation, 2020).

### Fishing / Harvesting Aquatic Resources

**Illegal shrimp fishing**

Illegal shrimp fishing has been occurring mainly outside of the Traditional Use Zone. After the Ministry of Maritime Affairs and Fisheries opened up for export of marine and fisheries products, including shrimp fry and crabs, there has been an increase in illegal shrimp fry collection at the East and South Ujung Kulon Peninsula. Since 2019, this has become a concern as it was recognised that it also disturbs the Rhinos in the area. Due to their shy behaviour, Rhinos now only exist at the West and North Peninsula (IUCN Consultation, 2020).

Since early 2020, there is an additional Rhino Protection Unit (RPU) that focuses on marine patrolling to reduce the illegal fishing and to control fishing activities within the Traditional Use Zone, especially in areas set aside at North Ujung Kulon Peninsula (IUCN Consultation, 2020).
Livestock Farming / Grazing
(Increasing Buffalo grazing/ farming )

The existence of Buffalo, which graze the habitat of Rhinos, might endanger the health of the Rhinos due to transfer of disease (IUCN Consultation, 2020). There is limited research available regarding this issue, and the research undertaken has so far not confirmed any spread of disease, such as anthrax (Bacillus anthracis), from domestic animals to Rhinos (Anderson et al., 2012). During the last two years (2018-2020) the number of buffalos entering JRSCA areas has been increasing, which might have prevented Rhinos from using the area, as so far, no Rhinos have been detected wandering in this area anymore, and all Rhinos are now located at the western side of the Peninsula (IUCN Consultation, 2020).

Solid Waste
(Increase in waste including plastics)

The scale of this problem is just becoming widely known (http://news.detik.com/foto-news/d-4467228/pantai-ujung-kulon-seolah-berubah-jadi-ujung sampah). A large amount of waste, mostly plastics, cover the water and beaches at the north isthmus of Ujung Kulon Peninsula and some are floating around Welcome Bay. It is believed that this waste originate from locals villages around UKNP, where it is not properly collected, but disposed of into the sea. Turtles and other marine animals are affected by the waste.

Potential Threats

Volcanic activity, Earthquakes/ Tsunamis
(Volcanic activity and tsunamis)

Although the Krakatau Islands are part of the Outstanding Universal Value (OUV) of Ujung Kulon National Park, as one of the world’s best-known examples of recent island volcanism, the continued high level of activity of Anak Krakatau is also a threat to the values of the site. The famous eruption of 1883 caused a tsunami with a height of 15 metres, which destroyed the old growth forests along the flat beaches of the Ujung Kulon peninsula (Hoogerwerf, 1970). Explosive magmatic (stromblian) eruptions of Anak Krakatau have occurred regularly since 2007, with a large eruption recorded on 2 September 2012, when the ash cloud reached a height of 1000 metres (PVMBG , 10 May 2014). In 2018, the Anak Krakatau began showing increased signs of volcanic activity, believed to have set off undersea landslides, triggering a tsunami that killed at least 430 people.

Within, UKNP the tsunami had limited impact, however, there were five victims found dead in UKNP (https://www.suara.com/news/2018/12/26/095528/diterjang-tsunami-tim-sar-temukan-banyak-ikan-naik-ke-daratan-ujung-kulon), including two rangers (IRF coordinator-Indonesia pers.com., 2020; IUCN Consultation 2020). There were also some physical damage, where two jetties, one concrete post, two wooden canoes, and one shelter were destroyed (https://www.suara.com/news/2018/12/26/095528/diterjang-tsunami-tim-sar-temukan-banyak-ikan-naik-ke-daratan-ujung-kulon).

No Javan Rhinos were killed by the tsunami, but it has shown the potential high threat (Dwiastono, 2018).
While the likelihood of another cataclysmic event such as the one in 1883 is relatively low, even a tsunami from a smaller eruption could have a devastating impact on the low lying parts of Ujung Kulon NP, and could be disastrous for the Javan Rhino (Setiawan et al., 2018).

**Mining/ Quarrying**

(*Gold mining in the proximity of the park)*

Gold mining occurs outside the site (IUCN Consultation, 2014b), very close to its north-eastern boundary. No information is available regarding the current impact from this activity on the OUV of the site, and these appear to be limited. However, potential direct (loss of forest cover, contamination of ground water) and indirect (increased risk of poaching, illegal logging, etc.) impacts should be carefully monitored.

The Company (Cibaliung Sumber Daya Gold Mining) is planning to end underground exploitation in August 2020, followed by closure of the open pit a year later (Company manager, pers.comm; IUCN Consultation, 2020).

**Roads/ Railroads**

(*Road development*)

Road development outside the National Park has facilitated access to nearby areas. This increases the risk of illegal activities such as encroachment and illegal logging. On the other hand, these roads facilitate the transport of agricultural products, thus increasing revenue for farmers (IUCN Consultation, 2014b), and reducing local communities’ dependence on the Park for their livelihoods. The road has also improved access to UKNP for eco-tourism activities.

Another 10km of road is planned to connect the village of Ujung Jaya. To address potential threats, the UKNP Management Authority is planning to cooperate with the local government on conservation issues and make efforts to develop prevention measures (IUCN Consultation, 2020).

**Invasive Non-Native/ Alien Species, Diseases/pathogens**

(*Diseases from water buffalo to Javan Rhino)*

The invasion of water buffalo (Bubalus bubalis) carrying Hemorrhagic septicemia (HS), known locally as septicemia epizootica and caused by Pasteurella multocida, into the Park poses a substantial health risk to the Javan Rhinoceros and threatens plans to establish a new population outside of its only current range in Ujung Kulon NP (Khairani et al,. 2018). Although, such plans have currently come to a halt due to conflicts over the land proposed as a potential new Rhino habitat (IUCN Consultation, 2020).
IUCN World Heritage Outlook: https://worldheritageoutlook.iucn.org/
Ujung Kulon National Park - 2020 Conservation Outlook Assessment

► Management system

Mostly Effective

A long-term Management Plan (2001-2020) is in place, which aims to establish Ujung Kulon as a sustainable and beneficial National Park through the realization of five management objectives, including improvement of local community welfare; development of ecotourism; protection of flora, fauna, ecosystems and cultural sites; scientific, technical and educational development; and sustainable use of biodiversity. Five inter-related management programmes are in place to achieve these objectives, i.e. Integrated Javan Rhino Management, Primates Management, Marine Management, Buffer Zone Management, and Ecotourism Management (UNEP-WCMC, 1991, updated 2011; Ujung Kulon National Park Office, 2015).

A revised long-term Management Plan of UKNP (2016-2025) was agreed by the Conservation of Natural Resources and Ecosystem’s decree No. SK/359/KSDAE-SET/2015 on December 31, 2020. Another important document recently released by the UKNP Management Authority is the 2017 revised Zonation of Ujung Kulon National Park (IUCN Consultation, 2020).

In addition, the government has prepared its third 10-year action plan for the Javan Rhino, for 2019-2029. The latest draft, produced in January 2019, suggests expanding the Rhino habitat in Ujung Kulon (Sadjudin, 2019).

► Effectiveness of management system

Mostly Effective

The UKNP Management Authority recently evaluated some of its management activities, showing an average point score of 83, meaning the management is so far satisfying (UKNP, 2019).

After establishing Ujung Kulon as a National Park, the UKNP Management Authority appointed three field management units, which are: Honje Mountain, Ujung Kulon Peninsula, and Panaitan Island. Each unit manages field staff, including park forest rangers, conservation technicians and administrators, and are responsible for protection and conservation actions in their units. All forest rangers are staying at strategically located guard posts, and are helped by locals and/or volunteers selected by the head of UKNP and the chief of the unit. Rangers and local volunteers, supervised by the chief of the unit, are also responsible for resort work in their respective areas of UKNP, providing services to visitors and undertaking protection actions through a basic field operational ‘Resort Based Management’ plan (IUCN Consultation, 2020).

► Boundaries

Mostly Effective

The boundaries of the site are mostly appropriate. However, at Legon Pakis and Ciakar there is some dispute about the boundaries. When the status of the Honje Mountains was upgraded from a production forest to a Nature Reserve in 1967, the change of status caused the existing kampong of Legon Pakis to become an illegal enclave, which sometimes results in conflict between the villagers and park management (Van Merm, 2008).

In 1980, the Central Government offered a relocation programme for some 70 families living inside the park. However, the relocation failed and people returned to both villages. The boundary dispute at Legon Pakis and Ciakar was finally resolved through agreements with both village communities in 2010 (IUCN Consultation, 2020).

Clear boundaries are very important and any issues need be solved in order to improve management and support from local communities and other key stakeholders. The UKNP Management Authority has initiated actions towards boundary delineation, including communication with local villages, and analysis of local activities, biodiversity and hydrological systems. Since the UKNP Zonation was legally declared in 2011 and updated in 2017 through field observations and stakeholder consultation, there have been no more boundary disputes (IUCN Consultation, 2020).

► Integration into regional and national planning systems

Mostly Effective

Ujung Kulon National Park and the Krakatau islands fall within different provinces (Banten and Lampung, respectively), however, both parts are being managed well (IUCN Consultation, 2014b). Ujung Kulon National Park, and the Javan Rhino specifically, are included in the National Strategy and Action Plan for the Conservation of Rhinos in Indonesia 2007-2017 (Ministry of Forestry, 2007). Un updated Strategy is expected to be finalised in 2020. Ujung Kulon National Park is a National Strategic Area on the basis of
its environmental importance (Ujung Kulon National Park Office, 2015). The 2017 revised Zonation of UKNP was also an effort to integrate consideration of the Park into regional and national land use planning. However, one concern of the UKNP Zonation are the activities in the Rehabilitation Zone. This area is 1474.64 ha, consisting of 1469.10 ha of land and 5.54 ha of coral reef, both in critical need of rehabilitation. The guidance on rehabilitation of forests and seascapes is regulated by the Ministry of Forestry (No. P.48/2014 on Right ways to the implement Ecosystem Recovery within Conservation Areas). Every year, the UKNP Management Authority collects data on planned actions of rehabilitation, funded by the UKNP budget and other partners (YABI, FOR, CSD, local government and other units of MoEF) who support rehabilitation actions in UKNP (IUCN Consultation, 2020).

**Relationships with local people**

The Government has issued a regulation and policy, which should be implemented by the UKNP Management Authority to guide local participation in the management of the National Park (MoEF Regulation No. P.43/2017 on Empowering Local Communities living around protected areas and conservation areas, and DG CNRE No. P.6/2018 on Technical Guidance for Conservation Partnership within Conservation Areas). Conservation Partnership actions were implemented in four villages (Ujung Jaya, Ranca Pinang, Cibadak and Kertamukti) in 2011 under monitoring by the UKNP Authority and the head of each village. These mechanisms are currently under review, and will be simplified and adapted to the new DG CNRE regulation. Two cooperation initiatives with local farmers are still running well, the harvesting of honey and of fruits of rattan species (locally known as Jernang) (IUCN Consultation, 2020; Winangsiha et al., 2020).

UKNP has recently signed a renewed cooperation/partnership agreement with a local NGO, Friends of Rhinos Foundation. Actions consist of local empowerment of mangrove crab aquaculture in Taman Jaya village; assisting the management of outdoor recreation facilities in Tanjung Lame village of Ujung Kulon (built in 2019 by the UKNP authority through the national budget); and continuing management of deer ranching in Pada Suka village (near Honje Mountain). However, the UKNP Management Authority needs more actions of implementing training for locals to improve their skills (Salim et al., 2018, 2020).

The Indonesian Rhino Foundation (YABI) has a strong cooperation with the UKNP Management Authority, and ensures intensive patrolling by Rhino Protection Units (RPUs). These RPUs consist of one Park Ranger and otherwise entirely of local people (IUCN Consultation, 2014a), who are therefore closely involved in the management of the Park. Recently, two new RPUs were formed for marine patrolling, including members from the local fishing community.

Overall, the relationship with local people may be considered to be effective.

**Legal framework**

The Indonesian laws protecting the site are technically sound.

**Law enforcement**

Relatively few occurrences of encroachment and illegal logging, as well as absence of any Rhino poaching incidents in the last two decades, suggest that law enforcement is generally effective. The Rhino Protection Units (PRUs) have law enforcement powers as long as they are accompanied by a Park Ranger (IUCN Consultation, 2014a). Two additional RPUs for marine patrolling have recently been established to combat illegal fishing and the use of destructive measures such as dynamite fishing, which destroy coral reefs and impact on the integrity of the marine ecosystem (Gumbira et al., 2017; Putra et al., 2019). Each RPU also do monitoring and record occurrences of illegal activities, which are reported to the chief of the unit and the head of UKNP. The Park Authority and YABI are also planning to set up Real Time Camera Monitoring to strengthen the SMART monitoring, which will be supported by the International Rhino Foundation, Global Wildlife Conservation and Wildlife Protection Solution, and discussions are currently underway to obtain approval from the Director General of Conservation of Natural Resources and Ecosystem, MoEF (IUCN Consultation, 2020).

Since 2016, the UKNP Management Authority has experienced some constraints in implementing law enforcement actions and integrated field operations with the local police due to budget cuts by the Law Enforcement unit of MoEF (IUCN Consultation, 2020).
Implementation of Committee decisions and recommendations

Data Deficient

The State of Conservation of Ujung Kulon National Park has never been examined by the Committee, hence no decisions or recommendations were made by the Committee in that regard.

Sustainable use

Mostly Effective

A Public Use Planning programme is in place to manage the use of the Park and its resources, be it for subsistence or commercial purposes, to ensure that it is sustainable. Among other objectives, the Public Use Plan aims to develop local economies through ecotourism, while ensuring that visitor impacts remain within the Limits of Acceptable Change (Ujung Kulon National Park Office, 2015, 2019). A Public Use programme is also being prepared for the Traditional Use Zone (both the parkland and marine areas), the Special Zone, and the Religious Zone, as the Zonation plan has now been legally issued (IUCN Consultation, 2020).

There is a significant threat to the marine portion of the site from destructive fishing methods, such as bomb fishing (Gumbira et al., 2017; Putra et al., 2019), and other illegal or unsustainable fishing practices. However, two new marine patrolling units have been established to address this issue.

Sustainable finance

Mostly Effective

The main source of funding is central government, which collects revenue from entry fees (UNEP-WCMC, 1991, updated 2011). Entry fees range from Rp. 5,000.- (USD 0.42) to Rp. 225,000.- (USD 18.77) per person per day for Indonesian nationals and foreigners respectively, and additional fees are paid for different activities, such as research and tourist activities (Ujung Kulon National Park Office, 2015, 2019). Data on visitor numbers in UKNP show that in 2018, 14,339 visitors generated an income of Rp. 500,000,000.- (USD 33,330) and in 2019, 7,552 visitors generated Rp. 600,000,000.- (USD 40,000) (IUCN Consultation, 2020). In addition, Park Management has established a number of partnerships for the implementation of management activities, including with WWF (until end of 2019), the Indonesian Rhino Foundation (YABI) and others (a full list of partners is available on www.ujungkulon.org).

Staff capacity, training, and development

Highly Effective

Rhino Protection Units receive specific training for the job, and may occasionally benefit from development opportunities such as study trips to other parts of Indonesia (Sumatra) or the world (India). The level of motivation of RPUs is very high.

Many UKNP staff have also received training funded by DG CNRE, Centre of Education and Training of Forestry and Environment (MoEF) to improve knowledge and skills (IUCN Consultation, 2020).

Education and interpretation programs

Mostly Effective

The National Park and its conservation value, in particular the Javan Rhino, feature prominently in local primary schools (Van Merm, pers. obs. 2008). Some educational/interpretation material is also available at Park Headquarters in Labuan. Programmes are in place to engage with local communities, e.g. on providing alternative livelihoods or through awareness-raising campaigns.

A revised guide book of Ujung Kulon National Park was issued in 2010 (in English and Bahasa), supported by the New Zealand Embassy (IUCN Consultation, 2020).

Tourism and visitation management

Mostly Effective

There is a Visitor Centre at the Park Headquarters in Labuan, which provides some information about the Park’s iconic species. However, not all visitors to the Park will pass Labuan, as visitor permits can also be obtained at the accommodation facilities on Handeuleum and Peucang islands. In addition to the accommodation provided on these islands, visitors also have the option to stay in home stays in the surrounding villages. Some local people are directly involved in ecotourism by working as guides and porters, and a variety of activities is provided by the local ecotourism organisation Kagum in Ujung Jaya (Van Merm, 2008).

Wiyono et al. (2018) estimated that the carrying capacity of tourists on Peucang Island, appointed as an area for tourism, has not yet been reached, but with the recent increase in visitor numbers,
management capacity needs to be developed and limitations should be considered to ensure ecological integrity.

In 2018, the UKNP Management Authority built some tourism facilities (accommodation, offices, shelters, a field for outdoor activities, parking area, and others) in Tanjung Lame (inside UKNP), near Ujung Jaya village, funded by the central Government. These are managed by people from the local villages, as agreed between the UKNP Management Authority and Bupati Pandeglang. In an effort to provide better services for tourists, some facilities of Handeuleum were also improved, with funding from the central Government. The development activities in Tanjung Lame, Ujung Kulon Peninsula, and Handeuleum Island costed Rp. 18 Billion (or USD 1,200,200) (IUCN Consultation, 2020).

**Monitoring**

Intensive day-to-day monitoring is provided by the Rhino Protection Units. In addition to signs or direct sightings of Rhinos, the RPUs also record sightings of Banteng, as well as instances of illegal activities encountered and/or investigated (IUCN Consultation, 2014a). On average, RPUs spend 14-22 days per month on patrol. In addition to this day-to-day monitoring, WWF and the International Rhino Foundation manage a network of camera traps, which provides valuable data about the Rhino population, as well as other species.

The goals for 2020-2022 are to increase RPU field patrols to 2 trips covering 4 km per day for the land patrols, and to 15 field patrol days per months for the two marine RPUs, to ensure continued zero Rhino poaching in UKNP. Field data collected by RPUs are analysed and collected in a monthly progress report (IUCN Consultation, 2020).

Field work is also undertaken by YABI in the Javan Rhino Sanctuary Conservation Area (JRSCA), with the following management goals:
1. To increase the number of Javan Rhino in UKNP by 10-15 individuals in the next 5 years;
2. Buffalo Control: No buffalos to enter JRSCA in 2020;
3. JRSCA Expansion: Extended JRSCA’s area by 5,000 ha;
4. Revitalization of three village agreements to support JRSCA (Ujung Jaya, Taman Jaya and Rancapinang).

In addition, YABI with support of IRF, WPS and GWC, and in cooperation with UKPN, is planning to improve field monitoring, especially of Rhino habitats, by setting up additional camera traps in some strategic places (IUCN Consultation, 2020).

**Research**

Much research has been conducted on Javan Rhinoceros, Banteng, the avifauna, coral reef fish communities, marine resources, plants (including Rhino food-plant species) and landscape ecology of Ujung Kulon NP (Ardiansyah, 2017; Gumbira et al., 2017; Setiawan et al., 2018; Putra et al., 2019; Yudha et al., 2019). Other research has focused on orchids, anthropology, mangroves, deer and monitor lizard, and rattan. The Krakatau islands have also been the subject of much research, particularly their recolonization by plants and animals (UNEP-WCMC, 1991, updated 2011).

Research related to the existence of the invasive Langkap palm (Arenga obtusifolia) and its spread throughout Ujung Kulon Peninsula has been undertaken by several researchers (Haryadi et al., 2012; Robiansyah and Hamidi, 2019).

**Overall assessment of protection and management**

Overall, the protection and management of Ujung Kulon National Park is considered mostly effective. Intensive monitoring by highly motivated Rhino Protection Units (RPUs) ensures that illegal activities remain largely under control, and data collected is forwarded to the Park Ranger teams. Recently, an additional two RPUs were established for marine patrolling, including members from the local fishing community. Despite occasional conflicts, the overall relationship between the UKNP Management Authority and local people is improving and many locals benefits from the existence of UKNP.
Assessment of the effectiveness of protection and management in addressing threats outside the site

Ujung Kulon National Park is an isolated protected area in a rural landscape. Outside threats relate to mining and a growing human population. There is currently no evidence that the mining activities close to the boundary of the national park are having a negative impact on its values, although more research and monitoring is required to confirm that. Low incidences of encroachment and other illegal activities indicate that potential threats from a growing human population are being effectively managed.

Best practice examples

Intensive protection and monitoring by RPUs in support from the UKNP Management Authority, as well as engagement with local communities and awareness-raising campaigns (through development of conservation partnership with head of villages and/or local groups of farmers and fishermen of local villages), have resulted in zero Rhino poaching for the past two decades. In addition, camera trap programmes and activities to control the invasive Arenga palm also employs many local people. This has resulted in a sense of pride among local people, both of the Javan Rhino programme and the existence of Ujung Kulon National Park.

State and trend of values

Assessing the current state and trend of values

World Heritage values

Most extensive lowland rainforest remaining on Java

Lowland rainforests in South-east Asia are a highly threatened ecosystem due to conversion to agricultural land and commercial plantations. In contrast, the lowland rainforests of Ujung Kulon NP remain generally in a good condition, and are barely impacted by encroachment and illegal logging. The main concern is the overabundance of Arenga obtusifolia palm (or Langkap), which out-competes most other plants, and causes habitat degradation. These changes in habitat diversity and vegetation affect the quantity and quality of food available to Javan Rhinos in Ujung Kulon NP, potentially leading to deficient nutrient intake and other associated health issues (Hariyadi et al., 2018). In 2007, this palm was reported to be established in 60 percent of the peninsula (Ministry of Forestry, 2007), and it is likely that this figure has increased since. Although it is native to these regions, Langkap is considered as an invasive species. The spread and dominance of Langkap has negative impacts on plant diversity. The density and diversity of seedling and sapling of plant species is low in areas where Langkap is dominant. Cutting clearance and chemical injection treatment are two methods that have been successfully used to control the distribution of the species in Ujung Kulon NP (Robiyansyah, 2019).

Critical habitat for threatened animal species

Other than for the Rhino, there is not much information readily available on the population sizes and trends of Ujung Kulon’s other species. According to the IUCN Red List of Threatened Species (www.iucnredlist.org, consulted on 25 September 2014), the Banteng population in Ujung Kulon NP is between 500 and 800 animals – the largest population on Java and possibly in the world. Poaching (mainly of birds) may be a threat to some species, but is generally considered to have a low impact (IUCN Consultation, 2014a). The overabundance of Langkap, which has an impact on the Rhino, may also be having an impact on other fauna. The spread and dominance of Langkap have negative impacts on plant diversity. The density and diversity of seedling and sapling of other plant species have been
IUCN World Heritage Outlook: https://worldheritageoutlook.iucn.org/
Ujung Kulon National Park - 2020 Conservation Outlook Assessment

Critical habitat for rare plant species

Kokoleceran (Vatica bantamensis) is an endemic tree found only in Ujung Kulon National Park and was for 20 years (since 1998) classified as Endangered by the IUCN Red List. Due to its very limited extent, small population size and prospect to experience decline in quality of habitat due to the Langkap invasion, Kokoleceran now meets the category for Critically Endangered (Robiyansyah, 2018; Robiyansyah et al., 2019). However, the impact of Langkap on Kokoleceran, which is known to grow on higher grounds around Payung Mountain, remain debated (IUCN Consultation, 2020). There is insufficient data available to assess the state and trend of other rare plant species in Ujung Kulon NP, and whether the overabundance of Langkap is having an impact on these species.

Landscape of exceptional beauty

There is no evidence of any of the elements that contribute to the outstanding natural beauty of the landscape having been lost or significantly deteriorated, although coral reefs have been impacted by destructive fishing methods (Gumbira et al., 2017; Putra et al., 2019; Yudha et al., 2019).

Stronghold for Javan Rhinoceros

When censuses started in 1967, the Javan Rhino population was estimated at 25 animals. By 1983 the population had reached 58 – 69 animals, but this growth was not sustained and the population has been estimated at 40-50 animals for decades. However, the camera trap data indicated that this number had increased to between 58 and 61 Rhinos in 2017 (International Rhino Foundation, 2017), which was an improvement from the previous estimate of 35 to 44 Rhinos reported in the 2014 IUCN World Heritage Outlook. In September 2019, Ujung Kulon National Park announced that four new Javan Rhinoceros calves had been observed through a recent camera trap survey in this last habitat of the species, putting the estimated global population at 72 individuals (Gokkon, 2019). According to the International Rhino Foundation, available evidence suggests that only 4 to 5 females are still breeding. It is believed that the rhino population has reached the carrying capacity of its current habitat (Setiawan et al., 2018), and that it cannot grow any larger without intervention. In response to this concern, the International Rhino Foundation, through its implementing partner YABI and with the support of other partners, has created the 4,000 ha Javan Rhino Study and Conservation Area (JRSCA) in the south-western Gunung Honje area, with among others the objective to expand the Rhino habitat through intensive habitat management. Control of Arenga palm (Langkap) in JRSCA has significantly increased visitation by Rhinos to feed on young browse plants and has shown good recolonization within one year of sample plots being cleared of Langkap (IUCN Consultation, 2014a; 2014b). The establishment of a second population within its former range in Indonesia has been a long-standing priority for Javan Rhino conservation, and continues to be urgent (Sadjudin, 2019). One prospective area was the Cikepuh Game Reserve, Sukabumi, West Java. However, surveys of this area were cancelled due to tenure conflicts and resistance from the local community. Another option would be the extension of JRSCA to the South Honje Mountain, as agreed by DG CNRE (IUCN Consultation, 2020).

While the situation of the Javan Rhino as a species remains critical, it is well protected in Ujung Kulon National Park.

Summary of the Values

Assessment of the current state and trend of World Heritage values

Based on the situation on the ground the current state of conservation of most values of Ujung Kulon National Park appears to be of high concern, although insufficient data is available to assess
to what extent habitats for rare plant species may be affected by the overabundance of the palm Arenga obtusifolia. What is evident is that the Javan Rhino population, although still breeding, appears to have reached the carrying capacity of its current habitat. Urgent action is required to increase the amount of habitat available to the Rhino to allow its population to grow. The recent creation of the Javan Rhino Study and Conservation Area (JRSCA) is starting to show positive results in that regard, and it is hoped that the experiences gained there will be replicable in the entire National Park. The establishment of a second Javan Rhino population elsewhere in its former range remains a high priority.

However, in the short term, it is planned to enlarge JRSCA to other lowland forest areas of Honje Mountain. This will include managing buffalo grazing and strictly regulate collection of non-timber forest products and marine resources in the Traditional Zones.

Additional information

Benefits

Understanding Benefits

▶ Direct employment

Rhino Protection Units consist primarily of local people. Recently there are two new marine patrol units that consists primarily of local fishermen and each unit is led by a ranger from Ujung Kulon National Park.

▶ Fishing areas and conservation of fish stocks

Legal fishing within the Traditional Use Zone and outside the boundaries of the site is an important source of income for some of the surrounding communities.

Factors negatively affecting provision of this benefit:
- Climate change: Impact level - Moderate
- Pollution: Impact level - Moderate
- Overexploitation: Impact level - High
- Invasive species: Impact level - Low
- Habitat change: Impact level - Low

Some disturbance to beaches where they are resting during fishing. Some pollution from oil spills and rubbish (plastics). Some over exploitation could happen, which is not picked up by forest rangers or RPU patrols.

▶ Access to drinking water

Local communities depend on water from the site for domestic use (drinking, cooking, washing), and for subsistence agriculture.

Factors negatively affecting provision of this benefit:
- Climate change: Impact level - Low
- Habitat change: Impact level - Low

Little change in the use of clean water from the sources in Honje Mountain; many locals use connected bamboos to supply water to sites in a village.

▶ History and tradition, Wilderness and iconic features

There is a Ganesha statue at the summit of Mount Raksa on Panaitan Island, dating from the 1st century AD. Other sacred/spiritual sites include Sanghyang Sirah Cave at the extreme western tip of the Ujung Kulon Peninsula, as well as sites in Cimahi and Kuta Karang in the Gunung Honje Area (within the
Factors negatively affecting provision of this benefit:
- Pollution: Impact level - Low

Sacred natural sites or landscapes
The iconic Krakatau Islands are included in the site. The 1883 eruption of Krakatau is world famous, and was the loudest explosion in recorded history. Half of the island of Krakatau was blown away in the explosion. A new island, Anak Krakatau (the Child of Krakatau), emerged from the waves in August 1930, and has been growing at an average rate of 6.8 meters per year since the 1950s.

Factors negatively affecting provision of this benefit:
- Pollution: Impact level - Low
- Overexploitation: Impact level - Low
- Habitat change: Impact level - Low

Only 83 visitors were recorded during 2019. All visitors and their guides in the field were under the control of the forest rangers and collection of plant and animal species and parts is prohibited according to the law of conservation.

Outdoor recreation and tourism
Peucang Island is an island in Ujung Kulon National Park appointed as priority area and welcome area for tourism (Wiyono et., 2018). In addition, Panaitan Island is a well known spot for surfers all over the world, and together with other forms of tourism represent a source of income for local communities.

Factors negatively affecting provision of this benefit:
- Pollution: Impact level - Moderate
- Habitat change: Impact level - Low

Construction of some facilities such as shelters, posts, jetties, information centre, office, and meeting rooms in Tanjung Lame and Handeuleum island, Ujung kulon Peninsula, has led to some habitat impact and water pollution.

Importance for research,
Contribution to education,
Collection of genetic material
The site is a natural laboratory for geology, biology and evolution, and features prominently in local primary schools. Much research has been done in the site (see section “Research” in the assessment of “Protection and Management”), and Anak Krakatau is subject to many studies by volcanologists the world over.

Carbon sequestration,
Soil stabilisation,
Coastal protection,
Flood prevention,
Water provision (importance for water quantity and quality),
Pollination
These benefits can reasonably be assumed to all be present, but detailed information to quantify these benefits is not available.

Data deficient

Summary of benefits
The site is of major importance for nature conservation, as it protects the largest remaining lowland rainforest on Java, as well as many endangered species, including three endemic primates, and the entire global population of Javan Rhinoceros. Its protection provides jobs to local people (patrolling, tourist guides, boat rental and food service for tourists), and local communities depend on the site for their livelihoods (use of water, important fish spawning area, traditional fishing, honey collection, traditional
crops etc.). The site is also a natural laboratory for geology, biology and evolution, and contributes to global knowledge.

Projects

Compilation of active conservation projects

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<td>Local district authorities; Government of Banten Province</td>
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<td>YABI, International Rhino Foundation (IRF)</td>
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<td>Yayasan Badak Indonesia (YABI) and International Rhino Foundation (IRF)</td>
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<td>YABI (Yayasan Badak Indonesia) and International Rhino Foundation (IRF)</td>
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<td>YABI and IRF</td>
<td>Monitoring javan rhino and camera trap program</td>
<td><a href="http://www.rhinos.org">www.rhinos.org</a></td>
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<td>6</td>
<td>Friends of Rhino Foundation</td>
<td>Local social economic empowerment, Ecotourism development.</td>
<td><a href="https://admfriendsorhino.wixsite.com/friendsofrhino">https://admfriendsorhino.wixsite.com/friendsofrhino</a></td>
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<td>7</td>
<td>Koperasi Hanjuan</td>
<td>Honey bee utilisation in the Traditional Use Zone of UKNP</td>
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<td>8</td>
<td>Local farmers group of Kerta Mukti village</td>
<td>Jernang utilisation (a kind of fruit of rattan plant species) at Honje Montain, UKNP.</td>
<td>Village Government of Kerta Mukti, Pandeglang District, Banten Province</td>
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<td>Local youth group of Ujung Jaya village</td>
<td>Management of UKNP owned eco-tourism facilities near the village built in 2019 (under supervision of head of village and Bupati/Head of District Pandeglang).</td>
<td>Village Government of Ujung Jaya, Padeglang District, Banten Province.</td>
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# REFERENCES

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