form where the land dips below the water table and fills with groundwater. Fraser's lakes are generally acidic and nutrient-poor, but they are popular sites for recreation. Among the organisms adapted to these acidic conditions are the wallum froglet (*Crinia tinnula*), the freshwater shrimp (*Caridina indistincta*), and the Fraser Island short-neck turtle (*Emydura macquarii nigra*).

**HUMAN IMPACT, CONSERVATION, AND THE FUTURE**

For thousands of years prior to European contact (the best estimates put human settlement at 5000 years ago), local Aboriginals lived on the island; shell middens, fish traps, and scarred trees are now all that remain of their once vibrant communities. Captain James Cook sighted the island in 1770, marking its initial European discovery, but the early European visitors did not find the island desirable. Matthew Flinders, an English explorer, remarked of the island in 1802, “Nothing can be imagined more barren.” The island took its name from James and Eliza Fraser, who were shipwrecked there in 1837.

Horses, sheep, and cattle were introduced with European settlers in the 1840s, and logging of Kauri pines commenced in 1863 and continued until 1992, when the island was designated a World Heritage Area. Mining for valuable minerals began in 1949 but no longer occurs today.

Years of logging, mining, and more recently tourism (the island gets 300,000 visitors per year) have altered vegetation patterns and disrupted local wildlife, but local authorities have taken notice. A comprehensive management plan running through the year 2010 addresses important issues such as fire management, invasive species eradication, and educational programs featuring the indigenous Aboriginal culture. With almost all of the island’s land area falling within Great Sandy National Park, the island appears poised for a bright future.

**SEE ALSO THE FOLLOWING ARTICLES**

Freshwater Habitats / Human Impacts, Pre-European / Sea-Level Change / Vegetation

**FURTHER READING**


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**FRENCH POLYNESIA, BIOLOGY**

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Despite their small size and remoteness, the numerous tropical and subtropical oceanic islands of French Polynesia (South Pacific) display a rich array of natural marine and terrestrial ecosystems and habitats. The terrestrial biota provide striking examples of plant and animal speciation and adaptive radiation, high levels of endemism, and a huge number of threatened and extinct species. The large variety of coral reef formations, from open atolls to completely closed lagoons, allows a high diversification of the marine biota. These unique biota are highly susceptible to human impact, particularly resulting from habitat destruction, biological invasion of introduced species, and potentially by global climate change and sea-level rise. The conservation of marine and terrestrial biodiversity is paramount in French Polynesia, not only for its ecological and cultural relevance but also for sustainable socioeconomic development.

**A GALAXY OF SMALL REMOTE ISLANDS**

French Polynesia, a French Overseas Territory (and an Overseas Country since its political status change in 2004, which gave it increased legislative powers and international autonomy), is located in the eastern corner of the South Pacific. Its maritime territory extends from 5° to 30° S and from 130° to 160° W. The islands themselves lie between 7° and 28° S and 134° and 155° W. It belongs to the Polynesian biogeographic province and to the floristic subregion of southeastern (or eastern) Polynesia, which includes the Cook Islands, the Pitcairn Islands, and Rapa Nui. French Polynesia comprises 120 tropical and subtropical oceanic islands and islets divided into five distinct archipelagoes, namely the Australs, the Societies,
the Tuamotu, the Gambiers, and the Marquesas. With the exception of the Tuamotu atolls which result from high volcanic islands formed at the East Pacific ridge after drift (~10 cm/year) and subsequent subsidence, all other island chains, oriented in a southeast to northwest direction, originated from the activity of volcanic hot spots.

These oceanic islands, aged between 30,000 and 60 million years old, are scattered over an ocean area as large as Europe, with an exclusive economic zone of about 5 million km². They are located more than 5000 km away from the nearest continental areas (South America, Southeast Asia, Australia), making French Polynesia one of the most isolated archipelagoes in the world (Fig. 1). However, the presence of many other island archipelagoes located to the west (Cook, Samoa, Tonga) and the northwest (Kiribati, Tokelau, Tuvalu) might have served as “stepping stones” for plant and animal species colonization.

A High Diversity of Natural Ecosystems and Habitats

The French Polynesian islands include 33 high volcanic islands, 81 atolls, and six raised atolls, forming a total land area of only 3520 km² (Table 1), and 15,047 km² of reefs and lagoons. Tahiti is the largest island in French Polynesia with an area of 1045 km², and it has the highest summit of all South Pacific islands (Mt. Orohena, which reaches 2241 m in elevation). The islands are characterized by a large variety of geomorphological types (Table 2), ranging from young volcanic islands (e.g., the volcanic cone of Mehetia in the Societies is 30,000 years old; that of Tahiti is between 0.3 and 1.3 million years old) to barrier-reef old volcanic islands called “almost atolls” (e.g., Bora Bora, Maupiti, and Maiao, which are part of the Societies and are between 2 and 4 million years old), carbonate atolls (e.g., Rangiroa in the Tuamotu, with a lagoon area of 1717 km²), coral islets, motu and sand cays (e.g., Motu One in the Marquesas), elevated (or raised) coral limestone islands (e.g., Makatea, Niau in the Tuamotu), and composite (volcanic and limestone) islands improperly called “makatea” (Rurutu, with limestone cliffs called “mato,” in the Australs).

Climate is tropical oceanic, but some islands are more equatorial (the Marquesas) and others more subtropical (the Gambiers and Australs, especially Rapa, with an absolute minimum recorded at 8.5 °C).

The geological and edaphic nature of the substrate (calcareous or volcanic), the rainfall and temperature gra-
The mean annual rainfall varies between less than 1500 mm/year and 10,000 mm per year; the temperature decreases by 0.6 °C per 100 m of altitude, and the exposure to the dominant southeast tradewinds (leeward dry coast and windward wet coast) have resulted in a high diversity of natural terrestrial habitats. The mountainous relief of Tahiti (with ten summits above 1500 m including three peaks above 2000 m) impressed Charles Darwin, who wrote in 1852, after coming from the Andes, that “in the Cordillera, I have seen mountains on a far grander scale but for abruptness, nothing all comparable with this.” The deep V-shaped valleys separated by knife-edge ridges with nearly vertical cliffs provide unique microclimates and marked isolation, which have facilitated cases of speciation (Fig. 2). Other unique mountainous landscapes in French Polynesia include the phonolitic sugar loaf peaks of Ua Pou (Marquesas), the dissected sea cliffs called the “rocky needles” of Fatu Hiva (Marquesas), the trachytic high-elevation plateaus of Temehani in Raiatea (Society) and the 100-m high limestone sea cliffs of Makatea (Tuamotu).

Reef morphology ranges from fringing reefs to barrier reefs, low-lying atolls (Fig. 3), raised or limestone atolls, and reef banks. Some atolls are open with one pass allowing large exchange of waters between the ocean and the lagoon (e.g., Hao), two passes (e.g., Rangiroa), or three passes (e.g., Amanu), whereas others are closed but feature many channels of communication (locally called “hoa”) on the reef flat (e.g., Reao) or only a few such channels (e.g., Takapoto). Other have a completely closed lagoon (e.g., Taiaro) or a filled-in lagoon (e.g., Nukutavake). The combined Tuamotu–Gambier archipelago comprises 77 atolls and raised atolls, the most numerous in an archipelago worldwide, and includes Rangiroa, which is the second largest atoll in the world with a lagoon that is about 30 by 80 km wide.

**A UNIQUE TERRESTRIAL FLORA AND FAUNA**

Because of their strong geographic isolation, relatively young geological age, and small size, which together imply a lack of topographic and habitat diversity on most of the islands, the islands of French Polynesia's native terrestrial fauna and flora are impoverished in terms of species numbers. However, this geographic isolation, along with the islands' habitat complexity, has resulted in high species endemism.

French Polynesia belongs to the Polynesia–Micronesia terrestrial biodiversity hotspot, one of the 34 key biodiversity areas in the world. It possesses four “endemic bird areas” (namely, the Societies, the Tuamotu, the Marquesas, and Rimatara in the Australs), according to BirdLife International, and one “centre of plant diversity” located in the Marquesas, according to the World Conservation Union (IUCN) and the World Wildlife Fund (WWF).

The terrestrial native vascular flora comprises about 890 native species, including about 550 endemics (62% endemism, up to 74% for the flowering plants only) and
11 endemic genera. Among the most speciose genera are *Psychotria* (Rubiaceae) with about 35 endemic species, *Cyrtandra* (Gesneriaceae) with about 30 endemic species, and *Myrsine* (Myrsinaceae) and *Glochidion* (Euphorbiaceae) with more than 20 endemic species. The steep elevation and rainfall gradients have a strong influence on vegetation composition and structure. Eight native vegetation types are recognized (Table 3): coastal or strand vegetation, para-littoral forests, wetlands (from low-elevation brackish marshes to mid-elevation riparian forests and high-elevation freshwater lakes and bogs), low- to mid-elevation dry forests, low- to mid-elevation mesic forests, mid-elevation and valley rainforests, high elevation cloud forests, and subalpine vegetation above 1800 m.

Considering the fauna, the native land snails comprise about 320 described species, nearly all of them endemic to French Polynesia. Among the most speciose taxa are the colorful tree snails of the family Partulidae (*Partula* spp. and *Samoana* spp.) with ~80 species described (all of them endemic except one native widespread species), and the small ground-dwelling snails Endodontidae with ~70 species (100% endemism).

The avifauna comprises 36 species including 30 endemic to eastern Polynesia. With an additional 27 nesting seabirds and 20 migratory birds, the avifauna of French Polynesia is one of the highest among all tropical islands. There is only one southeastern Polynesian endemic bird genera: the monarchs or flycatchers *Pomarea*, with one extinct species in Maupiti, one critically endangered species in Tahiti, one endangered species in Rarotonga (Cook Islands), and four extinct and three threatened species in the Marquesas. One extant species of sandpipers *Proobonia* (or *Aechmorhynchus*), a genus also found in Kirimitati Islands (Christmas Island), is found on a small number of atolls in the Tuamotu (Morane, Tenararo, Reitoru, Tahanea). Other common endemic land birds restricted to forested areas are fruit doves (*Prilinopus*), warblers (*Acrocephalus*), kingfishers (*Halcyon* or *Toiramphus*), swiftlets (*Aerodramus* or *Collocalia*) and lorikeets (*Vini*), with surviving species on a few atolls of the Society and Tuamotu Islands (*V. peruviana*), in a few high volcanic islands of the Marquesas (*V. ultramarina*), and on the makatea island of Rimatara in the Australs (*V. kuhlii*).

The entomofauna is less well known, with only 500 native species described. Some groups have undergone adaptive radiation resulting in 100% endemism: Such cases include the small weevil *Miocalles* (Coleoptera: Curculionidae) with 67 endemic species on Rapa, *Mecyclothorax* (Coleoptera: Carabeidae) with 70 endemic species in Tahiti, *Rhyncogonus* with 35 endemic species in French Polynesia, and black flies *Simulium* with 38 endemic species (29 in the Societies, nine in the Marquesas). Many new species of arthropods have been discovered in the islands over the last few years, including long-jawed spiders, black flies, mirid bugs, and most recently four new species of water-skating flies *Campsicnemus* (Dolichopodidae).

Freshwater ecosystems contain 37 native fishes (including 14 endemics) and 18 decapods (including three endemics), with the highest endemism rate being found in the Marquesas (64%).

The most remote southeastern island, Rapa in the Australs, has an exceptional biodiversity. It is home to ~100 endemic land snails falling within 16 endemic gen-

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**TABLE 3**

<table>
<thead>
<tr>
<th>Vegetation Type</th>
<th>Plant Formations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Azonal</td>
<td>Coastal vegetation</td>
</tr>
<tr>
<td></td>
<td>Coastal vegetation on sandy or rocky beaches</td>
</tr>
<tr>
<td></td>
<td>Forests on atolls and raised limestone plateaus</td>
</tr>
<tr>
<td></td>
<td>Vegetation of marshes, lakes and bogs, submangrove, riparian forests</td>
</tr>
<tr>
<td>Para-littoral forests</td>
<td>Low- to mid-elevation dry forests</td>
</tr>
<tr>
<td>Wetlands</td>
<td>Low- to mid-elevation mesic forests</td>
</tr>
<tr>
<td></td>
<td>Mid- to upper-elevation wet forests</td>
</tr>
<tr>
<td></td>
<td>High- elevation (montane) rainforests or cloud forests</td>
</tr>
<tr>
<td></td>
<td>Summit and ridge shrublands</td>
</tr>
</tbody>
</table>

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**FIGURE 3** Reitoru, one of the 77 atolls of the combined Tuamotu-Gambier archipelago.
era, 74 endemic moth species (Microlepidoptera) falling within seven endemic genera and one endemic family (Lathroteridae), ~60 island endemic plants falling within three endemic monotypic genera (Apostates, Metatrophis, and Pacificiferon), two endemic freshwater fishes, and one endemic bird (Ptinopus buttonii), on a land surface of only 40 km².

Among marine taxa, a total of 1024 fish species, 1500 molluscs, 978 crustaceans, 176 coral species, 977 crustaceans (including ~500 crabs), and 425 algae have been reported from French Polynesia. Many species were discovered recently during extensive marine surveys, with new island records and new species to be described. Four marine reptiles (three species of sea turtles and one sea snake) and 16 marine mammals (two whales and 12 dolphins) have been observed. The endemism of the lagoon and marine fauna is relatively poor; the highest rates are found for molluscs in the Marquesas (up to 20%) and in the Australs (10%). The relatively low diversity of marine and reef organisms is correlated with regional diversity, decreasing from west to east. The combined archipelagoes of the Societies, the Tuamotu, and the Marquesas are considered as one of the 43 marine priority ecoregions of the WWF “Global 200 Ecoregions” for their coral diversity and vulnerability.

**A TERRESTRIAL BIOTA WITH DIVERSE BIOGEOGRAPHIC AFFINITIES**

French Polynesia is characterized by an attenuated Indo-Malesian and Austro-Melanesian flora with a very few New Zealand taxa (e.g., Myoporum found in the Australs, Corokia and Hebe only in Rapa), and a few American components (e.g., Fuchsia in Tahiti, Plakothina in the Marquesas, Gouania in Mangareva). In addition, the Marquesas show some floristic affinities with Fiji (e.g., Trimeinia), and Hawaii (e.g., Cyrtodendron). The Australs have also taxa otherwise found only in Hawaii (e.g., Charpentiera and Nesoluma polynesium). The small sedge Oreoibolus furcatus (Cyperaceae), commonly found in the montane bogs of Hawai‘i, is restricted to a single population located on the highest peak of Tahiti, Mt. Orohena, at a 2240-m elevation. Finally, another principal interest of the French Polynesian flora is that it lies at the easternmost limit of the range of a very large number of genera in the Malesia and Pacific Ocean islands, such as Alpyia (Apoecynaceae), Ascarina (Chloranthaceae), Cyrtandra (Gesneriaceae), Fagraea and Genisostoma (Loganiaceae), Meryta (Araliaceae), Metroderos (Myrtaceae), Planchonella (Pittosporaceae), and Planchonella (Sapotaceae).

In the same way, among animals, some groups have come entirely from the west (e.g., Rhynchopterus weevils, Inselleium black flies, and Partula tree snails), whereas other show affinities across the eastern archipelagoes of Polynesia and Hawaii (e.g., Monarch flycatchers, thomisid crab spiders). Some taxa show disjunct boundaries between archipelagoes where lineages from the west meet those from the north/east (e.g., crab spiders likely derived from an American lineage occur in Hawaii, the Marquesas, and the Societies, whereas the Australs are occupied by one from Australasia). Other groups may have colonized each archipelago independently from different mainland sources (e.g., Tetragenatha spiders).

**RECENT HISTORY AND CURRENT THREATS**

The main threats are habitat destruction and fragmentation caused by agriculture; land clearing; housing development and urbanization; shoreline construction and coastal reclamation; infrastructure such as dams, roads, golf courses, and tourism resorts; extraction of coral sand and rocks from the lagoons and reef areas; fires; industrial or domestic pollution (of soil, rivers, and lagoons); overexploitation of natural resources (e.g., of the green sea turtle Chelonia mydas, the coconut crab Birgus latro); overfishing; intensive harvesting of black-lipped oysters for black pearl production; mining (phosphates on the raised atoll of Makatea in the Tuamotu between 1917 and 1966); nuclear testing (atmospheric tests between 1966 and 1974 and underground tests between 1975 and 1996 on the two atolls of Fangataufa and Morurua in the Tuamotu); biological invasion of accidentally or intentionally introduced species; and global warming (which leads to bleaching of corals, regression of the subalpine flora). French Polynesia is among the Pacific countries that will suffer most from sea-level rise because of its low-lying relief and coastal geomorphology. Coral bleaching because of sea water temperature rise has become more frequent over the last decades with major events in 1991, 1994, and 1998.

Several spectacular and ecologically disastrous biological invasions are well documented in French Polynesia (the invasive miconia tree Miconia calvescens; predatory animals such as the black or ship rat Rattus rattus; the carnivorous snail Euglandina rosea; the swamp harrier Circus approximans; aggressive birds such as the common myna Acidotheres tristis and the red-vented bulbul Pycnonotus cafer; and insects such as fruit flies Bactrocera spp.; tramp ants Pheidole megacephala, Sollenopsis geminata, Anoplolepis gracilipes; and sand flies). In the marine ecosystem, some mollusc species have been introduced
for the commercial value of their nacreous tests (*Trochus niloticus* and *Turbo marmoratus*) but without any apparent disturbances on reef communities. Some native species such as the marine algae *Sargassum mangarevense* and *Turbinaria ornata* have also become invasive; these examples were dispersed from the Society Islands to the Tuamotu atolls. The crown-of-thorns starfish *Acanthaster planci*, which feeds on corals, had periodic demographic outbreaks in the 1970s and the 1980s.

**CONSERVATION AND SUSTAINABLE DEVELOPMENT**

Two major waves of native species extinctions have occurred in the past. The first was related to overhunting, fire, and forest clearance since Polynesian colonization (1500 years ago) and was associated with introduced animals (Pacific rats, domestic dogs, chickens, and pigs), which drove many endemic birds to extinction, especially flightless rails (*Gallirallus*), swamphens (*Porphyrio*), ground doves (*Gallicolumba*), cuckoo doves (*Macropygia*), lorikeets (*Vini*), sandpipers (*Prosobonia*), and coastal palms and flying foxes (*Pteropus*). The European colonization period, starting ~250 years ago, has led to additional habitat destruction and alteration; to overexploitation and overharvesting (e.g., sandalwood *Santalum*); and to the introduction of grazing mammals (goats, sheep, horses, cattle), predators (black rats, cats, ants, swamp harriers), and aggressive competitors (invasive plants, common mynas). These impacts caused the extinction of many endemic birds (rails, sandpipers, the parakeet *Cyanoramphus*, the fruit doves *Ptilinopus*), plants (the daisy tree *Miconia calvescens* directly threatened by the massive invasion of the native *As a result, French Polynesia has one of the highest threats to these protected areas remains the invasion by

Rapid increases in transportation, which have led to the exchange of people, goods, and materials between neighboring continents and islands in the Pacific region, are leading to more species introductions, thus enhancing the risk of further invasions (e.g., the little fire ant *Wasmannia auropunctata*, the glassy-winged sharpshooter *Homalodisca vitripennis*, snakes, lizards, frogs, etc.). Rapid population growth in French Polynesia (the population has increased fivefold since the end of World War II and has doubled in the last 30 years from 110,000 in 1975 to 256,000 in 2006), combined with the fact that 70% of its inhabitants live on the island of Tahiti (170,000 in 2005), is leading to strong human pressures on natural resources and is increasing disturbance in native habitats (deforestation, fires, pollution, etc.).

The current situation of park and nature reserves in French Polynesia is critical. Natural protected areas are found on only nine of the 120 islands (Table 5), seven of which are uninhabited, small, high, volcanic islands (including Eiao, Hatutu, and Mohotani in the Marquesas) or uninhabited small atolls (Motu One in the Marquesas, Scilly and Bellinghausen in the Societies, Tiaaro in the Tuamotu). The total protected area is ~8260 ha (i.e., only 2% of the total land area of French Polynesia), and it does not include the most ecologically important habitats. All of the protected zones are characterized by a lack of management, with no monitoring or park guards, except for on the atoll of Tiaaro, which has been a UNESCO man and biosphere reserve since 1977. This reserve was recently enlarged to include six other Tuamotu atolls in 2006 (Fakarava, Aratika, Kauhei, Raraka, Niau, and Toaou), to form the Fakarava Biosphere Reserve. In the absence of humans, the main threat to these protected areas remains the invasion by

**TABLE 4**

<table>
<thead>
<tr>
<th>IUCN Categories</th>
<th>EX and EW</th>
<th>CR</th>
<th>EN</th>
<th>VU</th>
<th>DD and NT</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vascular plants</td>
<td>6</td>
<td>26</td>
<td>4</td>
<td>17</td>
<td>34</td>
<td>87</td>
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<td>Birds</td>
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<td>9</td>
<td>16</td>
<td>3</td>
<td>44</td>
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<tr>
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<td>Mammals</td>
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<td>0</td>
<td>1</td>
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<td>5</td>
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</tr>
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<td>Reptiles</td>
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<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>47</td>
<td>17</td>
<td>35</td>
<td>42</td>
<td>191</td>
</tr>
</tbody>
</table>

**Note:** IUCN categories: EX = extinct; EW = extinct in the wild; CR = critically endangered; EN = endangered; VU = vulnerable; DD = data deficient; NT = near threatened. From the 2007 IUCN Red List of Threatened Species, http://www.iucnredlist.org/.
alien plants and animal species (the miconia tree in the Te Faaiti natural park, feral sheep on Mohotani, feral sheep and pigs on Eiao).

The conservation of marine and terrestrial biodiversity is paramount in French Polynesia, not only for its ecological relevance but also for sustainable socioeconomic development. The tourism industry (about 250,000 tourists per year), black pearl harvesting (black-lipped oyster *Pinctada margaritifera* (7 tons of pearls exports in 2006), tuna fishing (about 10,000 tons per year), the production of coconut oil (*Cocos nucifera*), and the harvesting of noni fruits (*Morinda citrifolia*) and vanilla beans (*Vanilla tahitensis*) are the main economic activities and exports. Healthy reefs and lagoon waters are also crucial for human health. The bloom of the toxic dinoflagellate *Gambierdiscus toxicus* on the inshore reefs is correlated with severe natural disturbances such as cyclones but also with human disturbances such as airport construction on reefs (e.g., on the island of Raivavae in the Australs). The importance of traditional Polynesian knowledge should be taken into account because many species have a strong cultural value (e.g., medicinal and ritual plants, plant cultigens or cultivars, legendary animals) and because reef and lagoon environments and resources are so intimately linked with Polynesian life. Thus, future environmental management should draw on both modern and traditional conservation systems and should involve local island communities.

### Table 5

<table>
<thead>
<tr>
<th>Island Name (Archipelago)</th>
<th>Protected Area Type (IUCN Category)</th>
<th>Protected Since</th>
<th>Land Area (ha)</th>
<th>Marine Area (ha)</th>
<th>Elevation Range (m)</th>
<th>Vegetation Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taiaro Atoll (Tuamotu)</td>
<td>Natural Reserve, Biosphere Reserve since 1977</td>
<td>1972</td>
<td>340</td>
<td>920</td>
<td>0–10</td>
<td>Coastal vegetation and forest</td>
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<tr>
<td>Mohorani Island (Marquesas)</td>
<td>Natural Reserve, Habitat and Species Management Area since 2000 (IV)</td>
<td>1971</td>
<td>900</td>
<td>0</td>
<td>0–520</td>
<td>Para-littoral forest, dry and mesic forests</td>
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<tr>
<td>Eiao Island (Marquesas)</td>
<td>Natural Reserve, Habitat and Species Management Area since 2000 (IV)</td>
<td>1971</td>
<td>4000</td>
<td>0</td>
<td>0–577</td>
<td>Para-littoral forest, dry and mesic forests</td>
</tr>
<tr>
<td>Motu One Sand Islet (Marquesas)</td>
<td>Natural Reserve, Habitat and Species Management Area since 2000 (IV)</td>
<td>1971</td>
<td>50</td>
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<td>0–10</td>
<td>Coastal vegetation</td>
</tr>
<tr>
<td>Hatutu (Haturaa) Island (Marquesas)</td>
<td>Natural Reserve, Habitat and Species Management Area since 2000 (IV)</td>
<td>1971</td>
<td>750</td>
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<td>0–420</td>
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<td>Scilly (Manuae) Atoll (Society)</td>
<td>Natural Reserve (lagoon), 1992 (atoll)</td>
<td>1971</td>
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<td>10,000</td>
<td>0–10</td>
<td>Atoll coastal vegetation and forests</td>
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<tr>
<td>Bellinghausen (Motu One) Atoll (Society)</td>
<td>Natural Reserve (lagoon), 1992 (atoll)</td>
<td>1971</td>
<td>280</td>
<td>900</td>
<td>0–10</td>
<td>Atoll coastal vegetation and forests</td>
</tr>
<tr>
<td>Te Faaiti (Tahiti, Society)</td>
<td>Natural Park (II)</td>
<td>1989</td>
<td>750</td>
<td>0</td>
<td>75–2110</td>
<td>Mesic forests and rainforests</td>
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<tr>
<td>Vaikivi (Ua Huka, Marquesas)</td>
<td>Natural Park and Reserve (II and Ia)</td>
<td>1997</td>
<td>240</td>
<td>0</td>
<td>400–884</td>
<td>Rainforests and cloud forests</td>
</tr>
</tbody>
</table>

**See also the following articles**

Extinction / French Polynesia, Geology / Invasion Biology / Reef Ecology and Conservation

**Further reading**


**French Polynesia, Geology**

**Alain Bonneville**

*Institut de Physique du Globe de Paris, France*

French Polynesia is located in the south-central part of the Pacific Ocean, between 5° and 30° S and 150° and 160° W. It comprises 118 islands representing an area of 16,000 km² above sea level and having more than 5 million km² of water within the limits of its huge exclusive economic zone. All of French Polynesia’s islands are basaltic shield volcanoes that...