**VEGETATION & FLORA**

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**Background and current situation**

Tetiaroa is one of the five atolls of the Society archipelago (with Tupai, Scilly/Manuae, Bellinhausen/Motu One and Mopelia/Maupihaa) and the only one of the Windward islands group (which include the high volcanic islands of Tahiti, Moorea, Maiao and Mehetia). Its native flora and vegetation (“coastal strand vegetation” *sensu* Mueller-Dombois & Fosberg, 1998) are relatively similar to those found in other atolls of the Society or the Tuamotu. Some of these species are also commonly found on sandy and calcareous islets (“motus”) of the high volcanic islands (e.g. Moorea, Bora Bora Raiatea). About 40 native (indigenous) vascular (flowering plants and ferns) plant species have been recorded on the 13 islets of Tetiaroa atoll (Sachet & Fosberg 1983; Florence et al. 2007; Butaud, 2006; Meyer, pers. obs. 2014). The relatively low number of non-native (alien) plants, with about 50 recorded species, compared to other atolls in French Polynesia (Meyer, 2014) might be related to the few number of inhabitants living on Tetiaroa. Alien plants were restricted in the past and for a long period of time to the two inhabited islets of Onetahi and Rimatuu (Raynal, 1973). The proximity to Tahiti (at ca. 50 km), the presence of an airstrip, the specific land ownership, and the presence of a research station (“Tetiaroa Society Ecostation”), provide unique opportunities to conduct efficient research, resource management, species conservation and habitat restoration projects.

**Threats**

The native flora of Tetiaroa has been profoundly altered by both Polynesians and Europeans (Sachet & Fosberg, 1983). Large coconut plantations set up in most of the islets since the early 20th century (Sachet & Fosberg 1983) and until the 1950’s (Papy 1951-54) for copra production, have replaced most of the native vegetation. Human activities (housing development, cultivation, alien plant introductions) are still the main threats to terrestrial biodiversity, and thus have to be carefully managed to ensure long-term ecological sustainability.

**Desired outcomes**

In order to maintain and preserve the different native vegetation types found on the atoll (e.g. the *Pisonia-Pandanus-Guettarda-Hernandia-Cordia* forests, the *Suriana-Pemphis-Scaevola-Heliotropium* shrublands, the *Ipomea-Lepturus-Triumfetta-Vigna-Boerhavia* creeping vines and herbs and the wetlands dominated by sedges *Cladium-Mariscus-Eleocharis-Fimbristylis*), we propose:

(1) the complete protection of some of the most preserve/pristine small islets (e.g. Aie, Tahuna Iti, Tahuna Rahi, Reiono), with restricted access and limited management;

(2) the restoration of native forest in some selected larger islets covered by abandoned coconut plantations, by removing coconuts and promoting native species natural recruitment and/or reintroducing native species;

(3) the reintroduction in protected areas of some rare endemic plants such as *Sesbania coccinea* subsp. *atollensis* var. *parkinsonii,* last noted on the atoll in 1973 (Raynal, 1973) and extirpated since (currently known in the wild only from the atoll of Tupai). Other native plants which have not been recorded since the 1980’s (Sachet & Fosberg, 1983) such as *Achyranthes aspera* var. *velutina*, *Hedyotis romanzoffiensis*, *Heliotropium anomalum*, and *Pipturus argenteus* var. *tuamotensis* (Butaud, 2006) might be reintroduced in the atoll, if not retrieve after extensive surveys.

**Strategies and Actions**

**Strategy 1- Improve and update knowledge**

Action 1.1. Conduct extensive surveys in each islets/motu to update the list of native and non-native species and compare it with previous surveys.

Action 1.3. Map all vegetation types (satellite and/or aerial images) and locate (GPS) rare native species.

Action 1.4. Collect seeds of common and rare native plants for cultivation and propagation in a plant nursery to both understand their bio-ecology, and use them for gardens in the hotel and restoration in the wild (see below).

**Strategy 2 – Restore and protect**

Action 2.1. Control coconut trees (tree cutting, uprooting) in some islets to rehabilitate or restore native habitats, with long-term monitoring of the natural recruitment of native species, and/or with some replanting of native species.

Action 2.2. Control alien weeds (by hand removal, tree cutting, without chemical treatments) and eradicate selected/priority invasive plants if feasible (e.g. if small and localized populations, short longevity of the seed bank).

Action 2.3. Prevent new introductions of alien plants by elaborating a biosecurity action plan with procedures (e.g. “no new alien” strategy, cleaning shoes and clothes, inspecting building material, etc.).

Action 2.4. Reintroduce extirpated native species such as *Sesbania coccinea* (a legally protected species in French Polynesia, requiring a permit) or *Pipturus argenteus* (a food source for frugivorous fruit doves if they are reintroduced).

**Strategy 3 - Educate and train**

Action 3.1. Write an illustrated guide of the native and alien flora (mainly the Polynesian introduced plants) of the atoll for the general public (accessible on-line on the Tetiaroa Society website) with their Tahitian names and traditional uses.

Action 3.2. Set up “discovery trails” in the different vegetation types.

Action 3.3. Organize and coordinate “weeding” and native species replanting sessions with schoolchildren, students, and other volunteers.

**Literature cited**

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