

# Case study

## Palm



**Disclaimer:** The case study presented below is for a **fictional** species and is intended for training purposes only. The information presented in this account is not intended to reflect accurate information for any real species or the current situation within any particular country. This case study must not be cited for any purpose outside of Red List training.

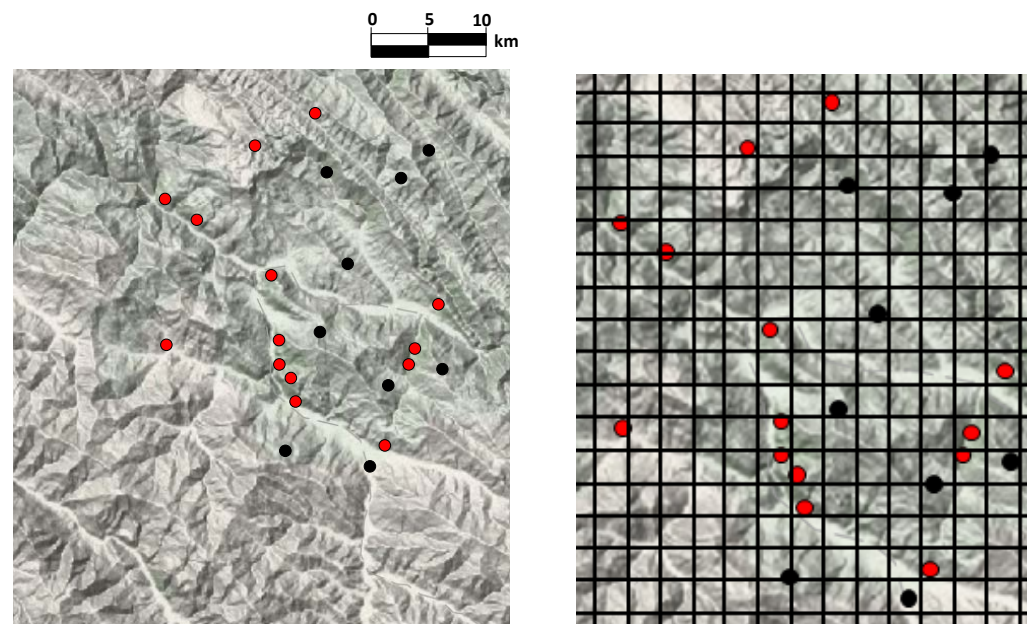
### Range:

This palm is endemic to only a few mountain valleys (see Figure 1). Although regular targeted surveys have been carried out for this plant over the last 20 years, it has only ever been recorded from 23 sites. Within the last 5-10 years it has disappeared from nine sites, but mature trees are still known to grow in 14 sites.

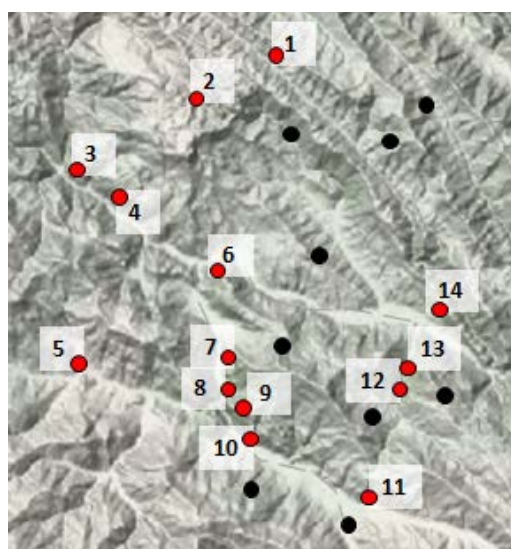
### Population:

Each of the mapped sites (Figure 1) is considered a separate subpopulation. This species has very limited dispersal abilities, and there is no known movement of genetic material between the subpopulations. Most subpopulations comprise only a few individuals (Figure 2). Subpopulations containing 4 or fewer mature plants are considered to be unviable.

It is estimated that approximately 200 mature trees were lost through the extinction of nine subpopulations within the last 5-10 years. The species is a relatively recent discovery (first collected 25 years ago) and nothing is known about population size or trends more than 10 years ago. With ongoing threats and no conservation measures currently in place for the species, the population is still declining.



**Figure 1:** *Left image:* Current and historic global distribution. Red circles = current occupied sites; black circles = historic (no longer unoccupied) sites. *Right image:* Grid overlay across the global distribution, using cell size 4 km<sup>2</sup>.



1. Three large mature trees only.
2. Three mature trees; four immature plants.
3. Four mature trees only.
4. Two mature trees only.
5. Single mature tree only.
6. Two very tall (old) mature trees.
7. 22 mature trees; many small immature trees.
8. 11 small but mature trees; many immature plants
9. Approx. 200 mature trees; >1,000 immature plants.
10. 40-50 large mature trees; many dozens of immature plants.
11. One tall (old) tree and many small (immature) ones.
12. 79 mature trees; many small immature plants.
13. Approx. 350 large mature trees; >1,000 immature plants.
14. Two mature trees; three small immature plants.

**Figure 2:** Number of plants recorded in each subpopulation, based on surveys carried out 2 years ago.

### **Habitat & Ecology:**

This plant is a montane palm species growing at an altitude of 1,700 to 2,500 m above sea level in subtropical forest, dry forest and even grassy areas. Mean annual precipitation in this region is about 550 mm per year. The dry season lasts five months (June to October); in some years it lasts even longer. In the wet season frosts can occur at night. This makes the palm suitable for cultivation in Mediterranean localities with similar climates. Seedlings and young plants prefer shady conditions, but as they grow they out-compete the adjacent vegetation and become a canopy plant in full sunlight.

One tree can continue producing viable seed up to around 90 years, but the species is relatively slow growing and although it can begin producing fruit at around 6 years old, it will not produce viable seed until the plant is at least 12 years old. After pollination, the fruit ripens for about 20 months. When the fruits fall to ground, the seed is dispersed by rodents that feed on the fruit. It is estimated that rodents do not disperse the seeds further than 100 m from the parent tree. Under natural conditions, the seeds need another 17 months until they germinate.

### **Threats:**

Overgrazing, land clearing, fires, and human use of the palm's fibres have a strong impact on the regeneration dynamics of this species.

The palm's fibres are used locally to make mattresses, ropes and saddle pillows. Apart from subsistence use these products are sporadically sold on local markets. Its leaves are also used to manufacture hats, baskets and fans. Leaves and fruits serve as fodder for livestock. Furthermore, the species is internationally traded as an ornamental plant.

At many sites the palm is a direct competitor to agriculture. The custom of felling the tallest trees when their productivity ceases, clearly shows that a palm will not be preserved unless it provides important socio-economic benefits to the farmers. This means that there is a dilemma between the usefulness and the subsequent overexploitation of the species, and the uselessness and clear cutting of the remaining subpopulations.



Eight years ago there was an increase in road construction in the area to provide better connectivity between rural areas and the nearest large town. Before these roads were built, farmers transported palm fibre to local markets on the backs of donkeys. This limited them in terms of the quantity they could transport which meant that adult palms could produce enough fruit to ensure adequate regeneration. However, now it is possible to harvest and transport much larger quantities of palm fibre. Over-exploitation resulting from this improved access to transport routes is blamed for the recent loss of nine subpopulations and the declining trend in all remaining subpopulations.

**Conservation:**

There are no direct conservation measures in place for this species at present.