

Flying foxes in Japan

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There are 35 species of bats in Japan, two of which are flying foxes. One is the *Pteropus dasymallus*, which lives on Kuchinoerabu Is. located at latitude 30 degrees north, which is almost at the northern limit of the range of flying foxes all over the world and the islands south of Kuchinoerabu Is. The other is the *Pteropus pselaphon*, which inhabits the Ogasawara Islands. Populations of flying foxes in Japan have never been large as they live on small islands, but habitat destruction has shrunk the animal population further. Fortunately flying foxes have not been a food source in Japan but after the Second World War *P. pselaphon* were exported to Guam.

Pteropus pselaphon

P. pselaphon is endemic to five small islands, located about 1000 km south of Tokyo. Their estimated population is less than 300. As Chichi Is. which holds the largest population among the five islands, is a tourist destination it is hard to preserve the habitat and natural food for the bats. The disturbance to their only roost and the development of nearby areas are also serious problems. According to Inaba et al. (2004) the bats feed on 56

plant species which belong to 36 genera of 19 families and one insect species on the island. But it has turned out that they rely heavily on introduced plants possibly causing problems on the insular ecosystem as they spread these plants. And as commercial fruits are included among them the bats have already created conflict with the local fruit growers. Although the bats are protected by the Wildlife Protection and Proper Hunting Law and they are also designated as a natural monument, rumor has it that angry farmers have secretly killed them and sometimes bats got accidentally tangled in nets. The netting of fruit trees has not become the custom as most orchards are so small that the cost to individual growers is too high.

Pteropus dasymallus

The status of *P. dasymallus* is a little better than *P. pselaphon*, as the estimated population reaches into the thousands. But development is also decreasing their habitat. According to Nakamoto et al. (2005) the bats in Okinawa Is. feed on 16 plant species and have an important role in seed distribution.

Other than Japan, *P. dasymallus* is also found on Liutao Is. in Taiwan and on Babuyan Is. in the northern Philippines.

The estimated flights of *P. dasymallus*

The diagram depicts the size of each island and the distance *P. dasymallus* has to travel to get to each island. We also

estimated the maximum distance of their daily flight.

- 1 The comings and goings between Minami-daito Is. and Kita-daito Is. of the bats were confirmed by radio tracking data. The distance between these two islands is about 8 km. (A)
 - 2 Although Tokasiki Is. is quite large and has a considerable amount of forest no flying foxes have been seen there. The distance from Okinawa Is. is about 18 km. (B)
 - 3 On Izena Is. which is 20km from Okinawa Is. the food is seasonally abundant but no flying foxes have been seen. (C)
 - 4 On Iheya Is. which is about 20km from Okinawa Is. although the food is seasonally abundant the only flying fox sighting was in about 1960 according to locals. (D)
 - 5 Flying foxes have been reported from all islands within 6km from Okinawa Is. which are smaller than 10km²
 - 6 On Yaku Is. which is about 11km from the nearest habitat flying foxes have only been seen a few times (E)
- Therefore we assume the maximum daily flight is between 10 and 15 km.

The conservation status of flying foxes in Japan

P. dasymallus is classified into five subspecies, including one in Taiwan. Among them, the subspecies *P. d. dasymallus*, whose population is estimated to be approximately 100 individuals, and *P. d. daitoensis*, whose population is estimated to be 300 are close to extinction, because their distribution is limited and all of

the islands on which they live are very small.

Minami-daito Is. is the home for endemic subspecies *P. d. daitoensis*. In 1998 the island started a project to protect natural monuments including *P. d. daitoensis*. The bat is the symbol of the island and residents plant trees to preserve the habitat. Furthermore, a facility to lead this project which exhibits the life of the flying fox for local people and tourists and organizes flying fox research (which involves elementary and middle school students on the island) was opened in July of 2001. The local people are going to revitalize the island with flying foxes.

Chichi Is. in the Ogasawara Islands has some eco-tours to watch flying foxes. It is important for flying fox conservation that local people know the flying fox can be a tourist attraction and revitalize the islands. But guidelines for eco-tourism are necessary, considering that the number of flying foxes is so small and the number of tourists is so large. Particularly, entering their roost during winter should be strictly banned as they congregate in one roost on the Island.

References

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