
Salar de Uyuni (Bolivia): Unique island biodiversity challenged by tourism and agriculture

Arthur Sanguet*¹

¹Institut de Recherche pour le Développement (IRD) – Institut de Recherche pour le Développement – Adresse du siège - Le Sextant 44, bd de Dunkerque, CS 90009 13572 Marseille cedex 02, France

Abstract

Located at 3653 m a.s.l. within the Bolivian tropics and reaching more than 150 km in length, the Salar of Uyuni experiences not only extreme temperatures but also a very dry climate and extreme levels of salinity. Within this large salt matrix, the presence of approximately 100 volcanic islands allows the presence of an overlooked biodiversity adapted to extreme conditions. This system is an archipelago but its specific matrix makes it a challenging case to test the island theory of McArthur and Wilson. From a societal viewpoint, the Salar is an important place visited by tourists and constitutes a significant income in the region. The sandbeaches of the islands are also an interesting place for farmers to grow quinoa (*Chenopodium quinoa*). We first describe it as a list (approx. 100 species) in 53 islands and identify six habitats. As expected by the island theory, distance from the Salar border and the size of each island were the best predictor of plant species richness. Nevertheless, the island most visited by tourists (Incahuasi) was unusually species-poor in our model, indicating the probable negative effects of intense human disturbance. Finally, the highest islands (100-200 m) had a different species assemblage, which we interpreted as due to their older emergence (they were not flooded by lakes during the last 45000 years). In conclusion, the plant richness was higher than expected and was shown highly sensitive to changes in human activities. Its intraspecific value remains to be evaluated.

Keywords: plant diversity, tropical ecology, salar de uyuni, Bolivia, anthropic impacts, insularity, intraspecific diversity, trichocereus, archipelago

*Speaker