

Informe - Son Bosc

The Robust Orchid *Orchis (=Anacamptis) robusta*

The robust orchid *Orchis (Anacamptis) robusta* is one of the rarest orchids in Europe. S'Albufera and its immediate boundary is its only European site. Outside Europe it is only known from single sites in Algeria and Morocco. We have been monitoring the Balearic population for 15 years. Numbers fluctuate but have never exceeded 1900. A strong population has established itself at Son Bosc and in 2007 this colony held more than two-thirds of the local, Balearic and European population, 878 compared with 432 inside the Park.

Bee-eaters

Bee-eaters *Merops apiaster* is another rare species with a colony at Son Bosc. It nests in holes and Son Bosc has a few consolidated banks where it can burrow. However, there are many other potential sites in Mallorca, indeed in the Peninsula it breeds in burrows in the ground. **The main reason that it is at Son Bosc is because of the abundance and diversity of flying insects:** bees, wasps, dragonflies, grasshoppers and crickets... The Park has recently create a breeding site inside the Park boundary. This has had some success but the birds spend a lot of time foraging outside the Park, including in Son Bosc. Our studies suggest that there is not enough flower-rich grassland inside the Park to support the numbers of insects that the Bee-eater requires. **Our prediction is that if Son Bosc is lost as a flower-rich area the Bee-eaters will eventually be lost as a breeding species.**

Diversity

Son Bosc has a huge diversity of invertebrates and plants. **Our studies suggest that it may have the highest biodiversity of any site in Mallorca.** The flower rich meadows in spring are some of the loveliest in the island and are **much admired by tourists** walking there.

Other Orchids

This diversity includes a range of other orchids. Alongside the robust orchids, partially hidden from view amongst the vegetation, are thousands of tongue *Serapias* and bug *Orchis fragans* orchids and hundreds of bee *Ophrys apifera* orchids. **None of our scientific team has ever seen such high densities of orchids in one place before.**

Endemic Moth

The zone is equally as important at night. On visits there in May we have recorded up to 50 hawk/moths Sphingidae flying round a light, plus lots of smaller moths. The Sphingids included considerable numbers of the **endemic** Balearic hawk-moth *Hyles dahlia*. This species is currently the subject of an intensive DNA study by a joint German and British team to unravel its relationships with similar species. It appears that the Balearic species, known from Mallorca and Menorca, may be the fertile outcome of former hybridisation between a species with south-western and a specie north-eastern origins. It should be noted that the abundant moths provide an important food source for bats. **S'Albufera is increasingly being recognised as a stronghold for Mallorcan bats, including internationally rare ones.**

Undescribed Species

The biodiversity of Son Bosc still requires further investigation. For instance, with help from international specialists, we are currently studying two species of hoverfly (Syrphidae) which could be new to science, a *Merodon* and a *Parhelophilus*. Both have been seen at Son Bosc.

Dune Grassland

The reason for this high biodiversity is the habitat. Son Bosc was previously a continuation of the fossil dune which still runs from Turó de ses Eres in the Park to the dune woodland of Es Comú Baix and beyond. Originally, this would have been a coastal sand bar, some 100,000 years or more ago. It was excavated for its sand until the late 20th century so has lost its previous topography. Nevertheless, the underlying soil remains essentially sand and it classifies as dune grassland, for its substrate and vegetation. Dune grassland is a rare habitat throughout Europe and is recognised as such by the EU. It is appreciated not only because it is rare but because it supports a high diversity of plants and animals. Son Bosc is no exception. The only other dune grassland in Mallorca is at Es Trenc. Es Trenc is valued to the extent that it is protected, but there the biodiversity and habitat structure is different. Therefore, **the habitat at Son Bosc is unique within Mallorca and its loss would be to eliminate one part of Mallorca's environment and heritage.**

Eleonora's Falcons

In the last few years it has become widely known that flocks of over 100 Eleonora's falcons *Falco eleonora* gather over Son Bosc on calm late spring and early summer evenings. They are attracted to feed on the large insects which are abundant at Son Bosc and in particular the large, clumsy scarab beetle *Polyphylla fullo* which takes to the air at dusk. This spectacle of one of Europe's rarest birds of prey, an endemic of the Mediterranean and north-west Morocco, twisting and turning close to the observer in search of its prey is now known internationally and is attracting tourists especially to see it.

Water Issues

Golf course management is not organic. Non native grass will be used. Herbicides will need to be used to eliminate other plant species. Golf courses like to have water features. I cannot imagine a course at Son Bosc not creating such features because the water table is close to the surface. Ponds and lakes will provide ideal breeding sites for mosquitos. **Golfers do not like mosquitos** (neither do people living in the area). Pesticides will no doubt be applied to reduce the mosquito problem. **All these additives will leach into the Park.**

Golf courses also need large amounts of water. Where will this water come from? If it comes from the Depuradora, this will lead to nutrient rich water entering the Park's hydrological system. If it comes from the ground water, this will lead to increased salinisation – a major concern for the local farming community as well as the Park. There is no escaping the fact that a golf course **will have a major negative impact on the Park's hydrology and water quality**; and this at a time when the Park is preparing a new hydrological plan to reduce the joint negative impacts of salt intrusion and eutrophication (nutrient enrichment of the water).

Climate change offers a further complication. It is unfortunate that we are in a period of considerable rainfall. Official predictions for the region are that average precipitation

will decrease considerably, leading to drought conditions for Mallorca. This has implications in terms of freshwater availability and salinity intrusion which would have drastic consequences for the Park and for the surrounding agricultural land – which is amongst the most productive in Mallorca.

The Genetics of the Robust Orchid

The robust orchid has had an interesting recent history. In 1989 it was still considered a sub-species of *Orchis laxiflora*, known in English as the Jersey orchid. From *Orchis laxiflora palustris* it was raised to species rank as *Orchis palustris*, but comparison with other *Orchis palustris* – for instance in Spain – showed subtle differences which saw it given the sub-species title of *Orchis palustris robusta*. This was an appropriate name because the orchid is large and robust and this led to further definition, raising it to species level as *Orchis robusta*. Yet further interest in the species led to investigation of its DNA and **this led to the astounding discovery that it was not an *Orchis* species at all, but an *Anacamptis***. This name is only now becoming widely accepted, hence the references above to *Orchis (Anacamptis) robusta*. The genetically based decision for the radical name change comes from it having a diploid chromosome number of 32 or 36. But there is a useful field distinction too: *Anacamptis* can be told from *Orchis* by the basal fusion of the three sepals in *Anacamptis*.

Convention for Biological Diversity

As the scientists continue to unravel the genetics of this interesting species, and its relation to other species in the Mediterranean and beyond, it reminds us that the Convention for Biological Diversity put a great emphasis on the protection of genetic diversity as well as diversity at the species level. Heads of governments from all over the world gathered in Rio in 1992 to discuss the accelerating loss of biodiversity throughout the World. This led to the Convention for Biological Diversity, signed by a large proportion of the World's nations – including Spain. At the same time Local Agenda 21 was launched. **This placed responsibility for biodiversity conservation and sustainable development in the hands of local people as well as national government**. We cannot think of a stronger case for action to be taken at the regional and local level to ensure that this rich biodiversity is protected to its fullest extent.

International Recognition and Tourism

The case for protection extends beyond the environmental realm. Son Bosc has been known for years as one of the best places in Europe to see bee-eaters at close quarters. It is also increasingly recognised for its landscape values (especially in spring when the meadows are full of colourful flowers), spectacular gatherings of Eleonora's falcons, and above all as the easiest and most accessible site for seeing the magnificent and incredibly rare robust orchid. The robust orchid even takes pride of place in the Balearic Islands Conselleria de Turisme supported article "Bienvenido a Mallorca" hailing the island as a **living Noah's Ark** at <http://www.sunbreakers.com/WelcomeMallorca.pdf>. There are therefore strong economic reasons for protecting the site and, unlike many sites, it can be visited without undue disturbance to the wildlife. The real Noah's Ark made landfall safely. **The Balearic government has a responsibility to its own hyperbole as well as to the international community to make sure that the leak in Mallorca's Noah's Ark is mended quickly.**

Nick Riddiford, Principal Investigator, The Albufera Initiative for Biodiversity (TAIB)
Macu Ferriz, Presidente, TAIB Treballam per s'Albufera i les Illes Balears
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A note about TAIB

TAIB works with local and international scientists to undertake investigations which help to understand, protect and manage the environment. It offers results and recommendations rather than entering into political debate. It is for the Balearic people to make decisions on their own environment. However, in this case the conservation issues extend to the international level and conserving this rare orchid species in its only European site is the responsibility and concern of the entire European community. We therefore make this information available to raise awareness of the critical importance of the site and the urgent need to take action to ensure that this rich part of the European as well as Balearic environment is not lost for ever.