

TERRESTRIAL ECOLOGY: DISCUSSION

(Initials: SC=Stephen Compton, RK=Roger Key, JH=John Hedger, TP=Tony Parsons, JM=John Morgan, MT=Myrtle Ternstrom, Q=Unknown participant)

Q: You mentioned, Dr Compton, that Lundy has several things in common with St Kilda. There are Soay sheep on St Kilda also. When Soay sheep were introduced to Lundy, could they have carried seeds of the cabbage plant with them?

SC: The cabbage plant is not on St Kilda, only the one beetle. The beetle could have moved, but it is now regarded as a separate species.

Q: When was the cabbage first referred to on Lundy? Did it pre-date the introduction of the Soay sheep?

SC: The Soay sheep were introduced in the 1940s. The cabbage or its ancestor has probably been on Lundy for thousands of years.

Q: Does the cabbage occur elsewhere on the Gower peninsula other than the place you mention?

SC: We did our sampling at Three Cliffs Bay on the Gower and here the cabbage is *Coincya monensis monensis*, which also occurs on the Isle of Man. The population of this subspecies on the Gower is genetically close to the Lundy cabbage, *Coincya wrightii*.

RK: If you look in the British Atlas there are a number of places where *Coincya monensis* occurs along the South Wales coast. All, except the ones in Three Cliffs Bay are the wallflower cabbage, a different subspecies, *Coincya monensis cheiranthos*, a Pan-European subspecies which has spread to North America where it has become a pest.

Q: Commercial sheep numbers on Lundy have decreased since 2003 and the feral life e.g. deer, has become carefully managed. You said rabbits influence cabbage numbers. Reduction in sheep will mean fewer rabbits as the sheep make the habitat suitable for rabbits which do not like long sward heights. If you take out the years when myxomatosis occurred, there is an inverse correlation between the number of sheep and the number of rabbits. At present with the removal of sheep, rabbits are increasing, but this will not last and it will go the other way.

SC: We have done counts on the numbers of plants in various areas and this has given insight into fluctuations in abundance. These changes appear to be driven largely by the large variation in rabbit numbers that occurs.

Q: If you remove sheep and there is not so much grazing, will this affect the growth of the fungi as well as the cabbage?

SC: As far as the cabbage is concerned there is spatial separation as the sheep are kept away from the cabbage areas.

JH: This is an example of a conservation dilemma - the assistance of the survival of one species at the expense of another! The best areas for the fungi on Lundy are on the centre of the plateau of the island, especially the Airfield and Middle Park. The Sidelands with their good plant diversity, where the cabbage lives, are good for pathogenic fungi. There is really no conflict as good management will reduce the excessive grazing that causes problems such as erosion. Plant biodiversity increases with grazing. If you stop grazing as Stephen has done in his enclosure experiments, then the Yorkshire fog, *Holcus lanatus*, and other grasses will take over. It is the heavy grazing and lack of fertilizer input that makes Lundy so exciting botanically. The most boring area for fungi on Lundy is the improved grassland where you only find one species, *Hygrocybe virginea*, which is tolerant of high nitrogen levels.

TP: It is important to remember that the species we are protecting now have been on the island for thousands of years. It is only in the last 40-50 years that the human species has been causing problems. If we return to subsistence farming on Lundy, e.g. farmed rabbits that are taken over to the mainland for sale, limited sheep, no fertilizers, then the original ecological balance may return, but I am not saying that we should; however this could be the reason why we have got the existing species on Lundy today.

JM: *My question concerns the behaviour of the bluebell, which I thought was a woodland plant. In recent years in May it has moved against the prevailing wind over the top of the island, where its stalks have become much shorter.*

TP: In Normandy and parts of Dorset you find stands of bluebells all down the cliffs. It is not just a woodland plant.

JH: Lundy can be compared with the similar islands of Skomer and Skokholm where you find bluebells, especially on Skomer, covering the island to the edges of the cliffs. It is also interesting to note that there is a fungus associated with the bluebell, *Uromyces muscari*.

Q: *A comment on the last question firstly. You find sheets of bluebells in open country from High Tor on the top of Dartmoor. A more maritime climate brings the species out from cover. My question is: was Lundy heavily wooded in the past?*

JH: Hubbard in her paper on trees in the LFS 21st Annual Report says that Lundy probably became deforested by the thirteenth century. This was due to usage of wood by the inhabitants and also to the sailing ships that came to Lundy for repairs. Obviously some fungi became extinct with the removal of the trees but the wood-decomposer fungi will come back in. Lundy must have been forested in the Boreal period around 5000 B.C.

MT: *Surely the destruction of the rhododendron will affect the birds and the deer will lose their habitat?*

TP: There has to be a balance. If there is a problem with the breeding land birds it can be solved by the planting of native trees and this will help the deer also.