

## **Lagoa de Albufeira nature reserve.** Site visit 22<sup>nd</sup> November 2006.

Ramsar Site. Natura 2000 site and SPA managed by ICN, CMS, SPEA *et al.* Basically consisting of three parts:

- Lagoa de Estacada freshwater reedbed
- Lagoa Pequena brackish lagoon
- Lagoa Grande saline lagoon (with mussel farm inside the lagoon and houses along southern side)

A LIFE project ran between 1986-1990. Three landowners own most of the land around the perimeter of the reserve, much of which is now heavily disturbed by motorised 'sand buggies', especially at weekends (see photos "Lagoa de Albufeira 12 & 13" of tyre mark damage to wetland adjacent to reserve perimeter fence). Reserve staff have tried to block access to some of the illegal routes into the adjacent forest. The reserve itself is out of bounds to the public with locked gates and stock-proof fencing but there are plans to open the area up for visitors including school groups.

My two-hour visit followed that from Dr Matt Self, RSPB Ecology Dept, 20-21 December 2004. Since MS's visit, a Landscape Plan incorporating a Management Plan has been written. The latter runs for 5 years 2006-10. However, very little management has taken place to date with the exception of some grazing by sheep and goats. My visit was aimed at helping provide ideas for managing the freshwater reedbed although visitor management and facilities were also discussed.

MS highlighted the proximity of the sewage farm in 2004 and the issues connected with that. MS also showed how adjacent land had been cultivated and how sand from there had entered the watercourse and was filling up the ditches. With respect to the former, it was envisaged the sewage works would cease to function in 2007 but this has been delayed until at least 2009 and it is uncertain if the new replacement sewage treatment works (planned elsewhere away from the reserve) will result in the complete closure of the existing one. Currently, the existing works was built to cater for 10,000 people but there are many more houses (some built illegally) that use it today. Thus, contamination is still current and with treatment "at best secondary", the problems of pollution continue.

In spite of river dredging to remove the sand since MS visited, there is again a large amount of sand in the main river feeding the lagoons (see photos), which in places are almost up to bank level.

### **Current management**

To date no reedbed management has been undertaken at the site. Sheep and goats have recently been introduced to graze the perimeter of part of the freshwater marsh. It appears cattle are difficult to acquire and so far have not been used (although a cattle herd were present nearby).

## Threats

- Pollution from sewage farm (see above). Water quality and water table largely unknown – a lack of data exists at present.
- Inundation by sand from adjacent farmland via erosion may lead to infilling of parts of the reedbed, raising ground levels. This may also exacerbate pollution threat from sewage works due to overspill from blocked watercourses.
- Scrub encroachment has not been addressed to date but this does not appear to be an issue yet. Scrub is mainly confined to the riverbanks and higher ground, suggesting water levels may be high throughout the year.
- Lack of reedbed management leading to natural succession.

## Possible recommendations to consider

1. Update maps of freshwater reedbed habitat to include all pools. Identify % cover open water, *Phragmites* reedbed, *Scirpus* and *Typha* beds etc.
2. Map extent of *Salix* willow scrub. Ensure this does not become established within the reedbed. Bank-side *Salix* and other species will benefit the Cetti's Warblers present - if these are identified as a priority species.
3. Identify target species – prioritise. Likely to be Purple Heron and Purple Gallinule (+ Marsh Harrier?).
4. Install water gauge boards across the length of the reserve to allow water levels to be ascertained. Take readings fortnightly/monthly for at least one calendar year. Set base of gauge boards at reedbed litter level (not hard ground) to measure depth of water across surface of reedbed throughout the year.
5. Following 3 above calculate % dry and wet reedbed areas in summer.
6. Assess salinity gradient across reserve and seek to prevent saline entry into main reedbed (by bund or sluice if possible).
7. Assess pH across site.
8. Water control. At present, only one blocked 'penstock sluice' (see photo) and one plastic pipe have been introduced. However, former inoperable and latter not under manual control so merely drains site once levels reach a certain depth. Consideration should be given to control the water level with the pipe. This could be removed and replaced at a lower level to drain the reedbed in autumn (to mimic natural drawdown) to facilitate access for reedcutting and allow oxygenation of the reed litter etc. A bend should be placed on the inward end to enable the operator to control the water level in the reedbed throughout the year. Alternatively, a simple weir or drop-board sluice could replace this system. *Control* is the key. This will help your case when confronted by adjacent landowners who may be unwilling to have their low-lying land flooded – it may not be but you have to prove it!
9. For Purple Heron, an "interior" reedbed species, care should be taken not to dramatically change the nesting habitat eg. no cutting should take place here near the nesting colony.
10. For Purple Gallinule the areas of *Typha* and *Scirpus* should be increased either by sacrificing areas of *Phragmites* by summer cutting or actively

introducing these species from plants within the reserve i.e. spreading the resource. If salinity levels permit, the perimeter of the reedbed could be used to facilitate this (but *Typha* is vulnerable at even low salinities).

**Grazing by cattle** should be seriously considered. To control the spread of *Phragmites* light grazing in spring @ 0.8-2 cattle/ha falling to 0.3-0.8 cattle/ha in summer will not affect the *Typha* as the terpenes present in the green tissue make it unpalatable for cattle at this grazing density. However, the cattle should be removed before the autumn when *Typha* becomes more palatable.

11. Grazing by sheep and goats should be reviewed. Goats will eat all your *Typha* and *Scirpus* and the sheep will create a very short grass sward – good for wildfowl in winter perhaps but not your target species?
12. Cutting reedbed regularly in summer will eventually eradicate it. This will provide new areas for *Typha* and *Scirpus* for gallinules, pools in winter for ducks/visitor viewing. In Great Britain RSPB cut reedbeds on 7-year rotation to maintain *Phragmites* vigour and dominance (by winter cutting), to address natural succession and improve reedbed structure. However, this is done mainly for Great Bitterns (as well as maintaining reedbed for above reasons). Much discussion took place on this subject and the reserve needs to firmly establish its priority species before deciding how much could be cut each year. Without any management, however, the reedbed will eventually deteriorate via natural succession and build up of leaf litter and phytotoxins in the water. Perhaps small areas could be cut on a ten-year rotation, avoiding the Purple Heron nesting site and creating additional habitat eg reed fen and pools as discussed above. Underwater cutting with an amphibious vehicle (such as the Truxor discussed) in winter would help provide more open water across the site.
13. Composting to prevent erosion. Prevent build up of sand in the reedbed and lagoons from erosion of adjacent fields. Consideration should be given to using the cut reed as compost, which could then be rotavated into the cultivated sandy “soil” around the reserve perimeter. RSPB has more information on this if you would like it. In particular, ‘open window’ composting may provide enough material to help establish a buffer strip in the worst affected areas and prevent sand entering your watercourses in future.
14. Use of volunteers. It would be beneficial if volunteers from the local community could be recruited to help with some of the practical reserve management tasks. This is what RSPB do in GB and we have found engaging in this manner highly beneficial for the local reserve with the volunteers feeling pride and a sense of ownership for their adopted site. At Marazion, we have 30 volunteers ‘on our books’ although only 6-7 attend the work sessions (every Tuesday and on the first and last Saturday in each month) at any one time. We have found it essential to obtain this local support but you need a good communicator on site (like Mario Reis at Paul de Arzila) and somebody who could find the time to lead such a

group, I am sure it would be a great help. I shall send some information from RSPB Headquarters on this subject.

15. Future plans with the public. We have discussed this at length but briefly I do not think it would be a good idea to allow access anywhere along the north shore of the lagoon. This will create too much disturbance and anyway, you would be looking south into the sun. Access as suggested along the south shore would be preferable. Provision of a wooden platform as a viewing area along the south bank for school children needs to be very carefully thought out especially in terms of Health & Safety. I would recommend using the flat grassy area under the trees (which also provide shade) instead – as shown in photo “Lagoa de Albufeira5”. There would be no need to build anything here (so avoiding any potential vandalism aspects) other than some interpretative panels and the aspect is ideal, looking north away from the sun across the main area of the lagoon. The view from the hide planned overlooking the reedbed pool needs to be carefully considered for the same reasons i.e. looking into the sun/lack of shade?

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28<sup>th</sup> November 2006.

- Encl. CD with photographs of reserve taken 20<sup>th</sup> November 2006.  
The Bittern in Europe: a guide to species and habitat management. RSPB  
Reedbed management for commercial and wildlife interests. RSPB  
RSPB Manual – working with Volunteers  
RSPB leaflet – Volunteer policy  
RSPB leaflet A little time makes a great difference. Volunteering information.  
RSPB volunteer handouts – various.