

Wow – Is That How They Really Do It?!

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This past autumn, the Highland Foundation for Wildlife deployed its first two 30g GPS/GSM transmitters on osprey, and they have brought another huge leap in knowledge and understanding. I remember the incredible excitement in 2007 when we used our first Argos GPS transmitter on the famous Scottish osprey named Logie, and put on our website the groundbreaking daily migration maps using Google Earth. This new system allowed us to take another big new step in tracking technology.

Blue XD is a male osprey breeding not far from Loch Garten, the osprey mecca in the Highlands of Scotland. He is a bird I know well, having ringed him as a sub-adult in 2000. His mate is 22 years old and winters in central Spain. After feeding his young through post-fledging, he set off on his autumn migration at 0730 GMT on 10 September and the migration data started pouring in, often at one-minute intervals – GPS location, heading, speed, and altitude. He flew through Scotland and England, over the sea to France and then 475 km over the Bay of Biscay. He did not stop on the North Spanish coast but headed on until he settled for the night near Plasencia in Extremadura – 2025 km in one flight of 35 hours and 10 minutes, at an average speed of 57.6 km/h.

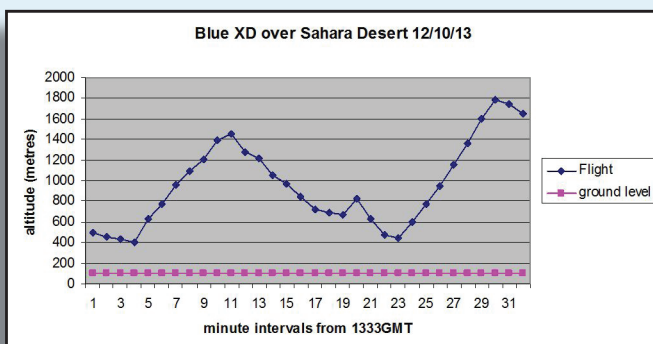


Blue XD fishing at Rothiemurchus Fishery, Scottish Highlands. Photo by: Neil MacGregor

On 12 September he roosted just north of Cadiz in southern Spain and next morning flew out over the Atlantic Ocean to Africa. His flight was 254 km to the coast of Morocco. The early morning fixes were at half-hourly intervals but as the sun came up, the GPS fixes were coming in every minute to give us the best-ever track of an osprey crossing from Europe to Africa, a region notorious for interference to the Argos system and unreliable satellite reception.

At home, I had seen the value of the new GSM tracking system as I could follow Blue XD on his summer forays to catch fish. He had four favourite localities between 8 and 16 km from his nest, one being the famous Rothiemurchus trout fishery, where bird photographers gather to get fantastic fishing shots. I could now see his daily behaviour; if unsuccessful at one place, he'd take a shortcut over the hills to another, and in between times would visit small lochs and rivers to try his luck. For the first time ever, the one-minute daytime signals gave a complete picture of his ranging behaviour – using an area of 380 km².

On 14 September Blue XD tracked along the front of the mountain chain south of Marrakesh and then over the High Atlas. The rapid series of fixes showed how



Example of altitudinal changes in Blue XD's migration over the Sahara Desert.

this seasoned traveller just took the highest barriers in his stride, rising to 3000 m when crossing highest peaks 700 m below. More exciting revelations were to follow.

Communication was lost when he was crossing the Sahara desert, until he reached the Senegal River between Mauritania and Senegal and the first mobile phone masts downloaded the stored data. It was very exciting to check the maps on Google Earth and when I looked at his migration track over the Sahara desert, I could see step-like patterns. An examination of the one minute fixes revealed that they showed exactly his soaring and gliding behaviour when crossing the hot, inhospitable deserts. Clicking on individual fixes showed that for six or seven

minutes he was rising rapidly from the desert surface (about 100 m ASL) from low points of 400 m to peak at 1400-1800m altitude and then losing height and gliding for periods of 11 to 14 minutes. This pattern was repeated with variations. By tilting the migration track on Google Earth one could see this beautiful rising and falling pattern as he headed south through Africa.

Blue XD reached his winter quarters in the mangrove backwaters of the Casamance estuary in southern Senegal at 1530 GMT on 22 September and that's where he settled down, undoubtedly a place he has known well in winter. The complete

migration path was so accurately displayed using the GPS/GSM system that we could work out he flew 5455 km in 13 days. This experienced migrator flew a fast, accurate track, considering that the direct distance between the nest in Scotland and African winter quarters is 5060 km.

The other transmitter was on Yellow HA, another breeding male. He delayed his departure from Scotland until 26 September, when the wintering geese were arriving from Iceland and Greenland. His data was just as illuminating. For example, on 11 October, in northern Mauritania he soared to 2530 m before his last glide of the afternoon, one hour and 62 km to his night roost at 200 m ASL. There is a mountain of data to explore this winter. He reached the Sine Saloum delta in Senegal on 14 October.

We now realise that it's essential for osprey conservation that ever-better links are established between the people of Europe and Africa. The satellite tracking data reveal the dangers of migration, the important stop-over locations, how they cross the ocean and the desert, where they winter, and how young ospreys learn to survive in Africa. The excitement of the satellite data has proved to be one of the most successful ways of bringing us together, especially when linking schools together over the whole migration route. (www.ospreys.org.uk/osprey-flyways-project/). The new GPS/GSM trackers will bring that into even sharper focus.



Blue XD arriving on coast of northern Morocco 1113 GMT on 13 September 2013.



Migration routes of two male ospreys crossing from Europe to Africa.

Blue XD (right track 13 Sep 2013); Yellow HA (left track 7 Oct 2013).