

DO PROLACTIN AND CORTICOSTERONE PLASMA LEVELS OF BREEDING COMMON TERNS INFLUENCE THEIR HATCHING SUCCESS?

Riechert Juliane¹, Olivier Chastel² and Peter H. Becker¹

¹ Institut für Vogelforschung 'Vogelwarte Helgoland', An der Vogelwarte 21,
26386 Wilhelmshaven, Germany
E-mail: juliane.riechert@ifv.terramare.de

² Centre d'Etudes Biologiques de Chizé, Villiers-en Bois, 79360 Beauvoir-Sur-Niort, France

Egg loss due to predation or nest desertion is a main factor of breeding success in seabirds. Therefore a constant incubation und protection of the clutch seems to be necessary. Incubation behaviour is controlled by hormones, especially by prolactin and corticosterone and interspecific differences in these hormones and in reproductive performance are known. We studied whether baseline plasma levels of prolactin and corticosterone in breeding Common Terns (*Sterna hirundo*) are related to their hatching success. Therefore we took blood samples in the midst of individual incubation of 238 Common Terns in 2007 and related the hormone concentrations to their age and hatching success. The samples were taken via blood-sucking bugs (*Dipetalogaster maximus*), a non-invasive method without stress for the birds. The results showed no effect of the birds' age but clear positive influences of both high prolactin and corticosterone levels on the hatching success of the terns. Elevated prolactin levels may be associated with constant incubation (Chastel and Lormee, 2002) and may support the harmonization of mates in incubation shifts. However, slightly increased corticosterone baseline levels could (1) support antipredator behaviour (Kruuk *et al.*, 2004) in order to protect the clutch and (2) trigger the foraging activities (Angelier *et al.*, 2007) in coordination with incubation.

References

- Angelier F., S. Shaffer, H. Weimerskirch, S. Trouve and O. Chastel. 2007. Corticosterone and foraging behaviour in a pelagic seabird. *Physiol. Biochem. Zool.* 80(3):283-292.
- Chastel O. and H. Lormee. 2002. Patterns of prolactin secretion in relation to incubation failure in a tropical seabird, the red footed booby. *Condor* 104:873-876.
- Kruuk M.R., J. Halász, W. Meelis and J. Haller. 2004. Fast positive feedback between adrenocortical stress response and a brain mechanism involved in aggressive behaviour. *Behav. Neurosci.* 118:1062-1070.