



## Natural Environment Group (NEG) Project Bidding Pro Forma

Project Title:	<b>When is a wading bird not a wading bird? The case of the European Starling.</b>
Project Sponsor/Lead (and full contact details):	Gordon Watson, Institute of Marine Sciences, University of Portsmouth, Gordon.watson@port.ac.uk
Full Address that any Purchase Order should be made out to	University of Portsmouth
Project Description and Objectives:	<p><b>Background</b></p> <p>Wading birds are at the heart of the Solent and the focus of numerous conservation measures that protect the species (e.g. Portsmouth, Solent &amp; Southampton Special Protection Areas) and the intertidal habitats that they use (e.g. Chichester &amp; Langstone, Portsmouth, Solent &amp; Southampton RAMSAR sites). The Solent’s wading bird assemblages are of international importance and are under severe stress from diverse anthropogenic activities, but what if there was evidence of an additional threat that was terrestrially-based? Anecdotal observations (Watson, Pers. Obs) have confirmed that European starlings (<i>Sturnus vulgaris</i>) are now routinely seen on the intertidal mudflats of Langstone Harbour with a recent study being the first to record them as part of an ancillary benthic community assessment (Morrall et al. 2024). Flocks of several hundred birds now spend a considerable amount of time feeding on the sediment, often hundreds of metres from the shore. The consequences of this change in a terrestrial bird’s behaviour for the <i>actual</i> wading species could be significant as they may compete for food and space with species that target a similar prey guild. For example, the short beaks of dunlin (<i>Calidris alpina</i>) and redshank (<i>Tringa tetanus</i>) could make these species particularly vulnerable to this new competitor. The presence of hundreds of starlings repeatedly feeding on a mudflat would add to the pressures for these species, which are already on red/amber conservation lists. At the same time, this behavioural evolution may also help the UK’s starlings, which have suffered dramatic population declines (e.g. 87% in England) since the 1970s.</p> <p>Using high resolution cameras this project will collect scientifically robust data on the numbers, location and behaviour of starlings (and other wading birds) in the marine habitats of Langstone Harbour across summer and autumn. Not only will these data be the scientific confirmation of a global first, but they will also provide the basis for important discussions with conservation stakeholders e.g. NEG members. These data could be the impetus for a paradigm shift in how wading birds are protected in the future. Policies and on-the-ground management may need to include this terrestrial species if the shift in behaviour continues and is propagated to other flocks across the Solent and beyond.</p>

	<p><b>Approach and methodology</b></p> <p><i>1. Define observation zones</i></p> <p>Intertidal mudflats outside the Institute of Marine Sciences (University of Portsmouth) will be used for this study, with the laboratories (Building C) offering a perfect vantage point for setting up the cameras. The intertidal area to be surveyed will be demarcated using bamboo sticks, thus enabling a bird's location to be rapidly recorded and bird densities to be calculated.</p> <p><i>2. Deploy cameras</i></p> <p>Two Nikon D750 cameras with AF-S NIKKOR 50mm f/1.4G lenses (giving sufficient field of view and image quality) will be deployed to gain full coverage of the demarcated area, although an iterative process will be necessary to optimise the final angle and direction of each. Time lapse images will be recorded with images stored on internal SD memory cards. To minimise data volume, cameras will be programmed for low tide and diurnal periods only. Finally, all images will be uploaded to the University's Google drive for storage and sharing with volunteers.</p> <p><i>3. Share images with volunteers for analysis</i></p> <p>Using the Solent Forum's network, we will recruit expert volunteers from relevant organisations (e.g. RSPB, Bird Aware, Hampshire &amp; Isle of Wight Wildlife Trust, British Trust for Ornithology) to analyse the images. Volunteers will attend an online training event hosted by G Watson to ensure that all utilise the same protocol to count, identify the species and record the position and behaviours of the starlings and other wading birds. Data will be curated by G. Watson and analysed as required using a variety of statistical techniques.</p>
<p>What is the value of the project to the Solent European Marine Sites (SEMS), other designated sites or areas of conservation interest?</p>	<p>The success of the project is that it will be the first to collect data of this phenomenon anywhere in the world, placing the Solent at the forefront of behavioural evolution research. However, the significance and legacy will be that it will provide robust scientific evidence that <b>both</b> terrestrial and marine birds must be included in future conservation measures (e.g. identification of bird sensitive areas) for wading birds in the Solent.</p>
<p>Project Outputs:</p>	<p>Scientific paper and a submission for a larger grant to the British Ecological Society based on the published paper (expected early 2025).</p>
<p>Project Timescale and Milestones:</p>	<p>6 months from 1<sup>st</sup> June 2023. 1-page summary and a scientific paper, presentations to Solent Forum and stakeholders</p>
<p>Overall Project Cost (£): <i>Please detail other funding sources secured/sought.</i></p>	<p>The only project cost is the purchase of the cameras, lenses and the SD-memory cards. No other sources of funding are available as this project is an exemplar of pump-priming activity.</p> <p>Nikon D750 camera @ £999, AF-S NIKKOR 50mm f/1.4G lens @ £382, 512 GB memory card @ £105. <b>Total cost: £2972</b></p>

Funding contribution sought from NEG (£): <i>The amount requested should be match funded.</i>	£2972. All G Watson's time will be free. As the analysis will be shared amongst volunteers no other staff costs are required.																																																	
Will the project still go ahead without NEG funding?	No, as we do not have the equipment																																																	
Geographical coverage of the project:	Langstone Harbour, but relevant to the whole Solent																																																	
Please list any project partners:	None																																																	
Additional information to support the Bid:	<p><i>References</i></p> <p>Morrall Z. et al. (2024). Algal mat removal efficacy in temperate intertidal systems and the associated nutrient remediation potential under Blue nitrogen trading schemes. <i>J. Environmental Management</i>, submitted.</p> <p><i>Programme of work</i></p> <table border="1"> <thead> <tr> <th></th> <th colspan="6">Month</th> </tr> <tr> <th>Research tasks, start 1/6/24</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>5</th> <th>6</th> </tr> </thead> <tbody> <tr> <td>Establish observation area</td> <td style="background-color: #cccccc;"></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Recruit expert volunteers</td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Video bird activity</td> <td></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td></td> </tr> <tr> <td>Analyse video activity (volunteers)</td> <td></td> <td></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td></td> </tr> <tr> <td>Generate scientific paper</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td style="background-color: #cccccc;"></td> </tr> </tbody> </table>		Month						Research tasks, start 1/6/24	1	2	3	4	5	6	Establish observation area							Recruit expert volunteers							Video bird activity							Analyse video activity (volunteers)							Generate scientific paper						
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**Submission date:**

Please email completed forms to [solentforum@hants.gov.uk](mailto:solentforum@hants.gov.uk). **Important: If you do not get a receipt for your application please phone the office.**