

Alderney's West Coast and Burhou Islands Ramsar Site and Other Sites Action Plan 2023

Prepared by: Alex Purdie (AWT Ramsar Officer)

Contributors: Dr Mel Broadhurst-Allen (AWT Marine Coordinator), Daniel Whitelegg (AWT Ecologist), Matt Lewis (AWT Ecologist), Justin Hart (AWT Avian Ecologist), John Horton (ABO Warden, CIBRS Chair)

Reviewed by: Roland Gauvain (AWT CEO), Dr Tara Cox (AWT Ecologist), Lindsay Pyne (AWT Honorary Secretary), Abigail de Castella (AWT Team Wilder)

ARAG Scientific review by: Dr Phil Atkinson (BTO), Francis Binney (Jersey Marine Resources, Government of Jersey), Paul Buckley (RSPB), David Chamberlain (Guernsey States Veterinary Officer), Prof Charles Michel (Imperial College London)

Noted by GSC: 14.04.23

Alderney Wildlife Trust
48 Victoria Street
Alderney
GY9 3TA
Bailiwick of Guernsey
Channel Islands

ramsar@alderneywildlife.org
<http://www.ci-ramsar.com>
www.alderneywildlife.org

Executive Summary

1. The 2023 *Alderney's West Coast and Burhou Islands Ramsar Site and Other Sites* annual action plan describes work to be undertaken in 2023. This action plan incorporates the objectives outlined in the ARS3 Ramsar Management Strategy and the recommendations made in the 2022 Ramsar Review.
2. To achieve the strategic aims of ARS3, a series of objectives are set out for 2023. These encompass the long-term monitoring of Alderney's seabird population, responding to HPAI, protections for sensitive breeding birds, rodent control, marine surveys, various outreach events and support for advisory and legislative activities. Some elements of work that were not completed in 2022 as a consequence of the HPAI outbreak have been rescheduled for 2023.
3. The seabird work will include a) monitoring productivity of Puffins, Gannets, Fulmar, Common Terns, Razorbills, Guillemots and Ringed Plover; b) census of the breeding populations of Puffins, Gannets, Fulmar, Cormorants, Shags, Common Terns, Guillemots, Razorbills, gulls (excepting Lesser Black-backed Gulls) and Ringed Plover; c) an assessment of the long and short term impacts of HPAI on Alderney's Gannets, d) continuation of the TAG project, specifically the attempted recovery of geolocators deployed in 2017 and 2020; e) monitoring the impact of plastic marine debris on Gannets; f) monthly WeBS surveys; g) a programme of seabird ringing including Gannet chicks on Ortac and Les Etacs, gull chicks and Storm Petrels on Burhou and Cormorant chicks on Little Burhou. If feasible, auks and Shags on Coque Lihou will also be ringed.
4. The terrestrial work will include a) the on-going programme of rat control on Houmet de Pies and Fort Houmet Herbé assisted by SoA; rodent monitoring on Burhou, Hanaine stack and the south coast islets and; b) continuation of monitoring bats within the Ramsar site as part of the Bailiwick Bat Survey.
5. The marine work will include a) Phase 1 intertidal habitat mapping of Ortac and Les Etacs; b) intertidal habitat biotope surveys completed at Hanaine Bay and Burhou, and the conducting of quantitative intertidal species assessments within selected habitats; c) the assessment of Green Ormer and crab populations; d) the assessment of invasive species and climate change indicators through Shoresearch surveys; e) a climate change driver assessment; f) Seasearch surveys; g) Baited Remote Underwater Video surveys; h) support for the Planktoscope project; i) Support for the 'Fish Intel' acoustic monitoring of cetaceans and commercially important fish species project; j) marine mammal work including a programme of Grey Seal surveys, the maintenance of a photographic ID catalogue and continued reporting of opportunistic cetacean sightings; k) support and lead for academic projects and; l) beach cleans following Marine Conservation Societies' survey methods.
6. The natural history of the Ramsar site will be brought to the public through various outreach projects including a) the live streaming of wildlife webcams from seabird colonies with 'PuffinCam' on Burhou and 'GannetCam' overlooking Les Etacs; b) educational boat tours including free tours for students at St Anne's School and all residents of Alderney under the age of 16; c) a wide programme of public engagement events year round including rock-pooling, beach cleans and a number of events in Wildlife Week and; d) citizen science events to enable local people to get involved in science on the Ramsar site.
7. Support and lead for advisory and legislative activities will include a) drafting the next five-year Ramsar management strategy (ARS4) on behalf of, and in collaboration with, the States of Alderney; b) continued support of the 'Puffin Friendly Zone' off Burhou with a review of the protocol to deal with vessels which purposefully enter the zone; c) updating Ramsar signage and information boards; d) redeployment of signage for sensitive wildlife; e) maintaining the network of other Channel Island Ramsar sites, including maintenance of the Channel Island Ramsar website and a pan Channel Island's Ramsar sites meeting; f) maintaining links with the international community regarding HPAI; g) Work with the HPAI working group to respond to HPAI in 2023.

Table of Contents

| | |
|--|-----------|
| <i>Executive Summary</i> | 0 |
| 1. Introduction | 1 |
| 2. Background | 2 |
| 3. Objectives | 4 |
| 4. Further Details | 6 |
| 4.1 Seabird Monitoring | 6 |
| 4.1.1 Atlantic Puffin Monitoring | 6 |
| 4.1.2 Northern Gannet Monitoring | 7 |
| 4.1.3 Northern Fulmar monitoring | 9 |
| 4.1.4 Common Tern monitoring | 10 |
| 4.1.5 Ringed Plover monitoring | 10 |
| 4.1.6 Other seabird monitoring..... | 11 |
| 4.1.7 Seabird Ringing..... | 12 |
| 4.2 Terrestrial | 13 |
| 4.2.1 Rat control | 13 |
| 4.2.2 Bat surveys on Burhou | 13 |
| 4.3 Marine | 14 |
| 4.3.1 Rocky intertidal surveying | 14 |
| 4.3.2 Benthic ecology and topography | 14 |
| 4.3.3 Pelagic surveying | 15 |
| 4.3.4 Marine Mammal surveying | 15 |
| 4.3.5 Academic projects | 16 |
| 4.4 Events and outreach | 16 |
| 4.4.1 LIVE: Teaching Through Nature. | 16 |
| 4.4.2 Boat tours | 17 |
| 4.4.3 Free educational boat tours for Year 6 students at St Anne’s School..... | 17 |
| 4.4.4 Community engagement and public awareness events..... | 17 |
| 4.5 Advisory and Legislative | 18 |
| 4.5.1 ARS4 | 18 |
| 4.5.2 Scientific Advisory | 18 |
| 4.5.3 The Puffin Friendly Zone | 18 |
| 4.5.4 Ramsar signage..... | 18 |
| 4.5.5 Sensitive wildlife signage..... | 18 |
| 4.5.6 Networking with other Channel Island Ramsar Sites | 18 |
| 4.5.7 Networking with other Channel Island Ramsar Sites | 19 |
| 4.5.8 RIS Update | 19 |
| 4.5.9 HPAI in 2023 | 19 |
| 5. References | 20 |

1. Introduction

This document sets out the work objectives for 2023. This work aims to fulfil the objectives set out in ARS3 and includes recommendations made in the 2022 Annual Review of the Ramsar Site (Purdie et al., 2023, not yet published).

2. Background

On 25th August 2005, the Alderney West Coast and Burhou Islands Ramsar Site was designated and gained global recognition as a wetland of international importance under the Ramsar Convention, the first of its kind within the Bailiwick of Guernsey. The site covers 1,500 hectares of land and sea (Figure 1).

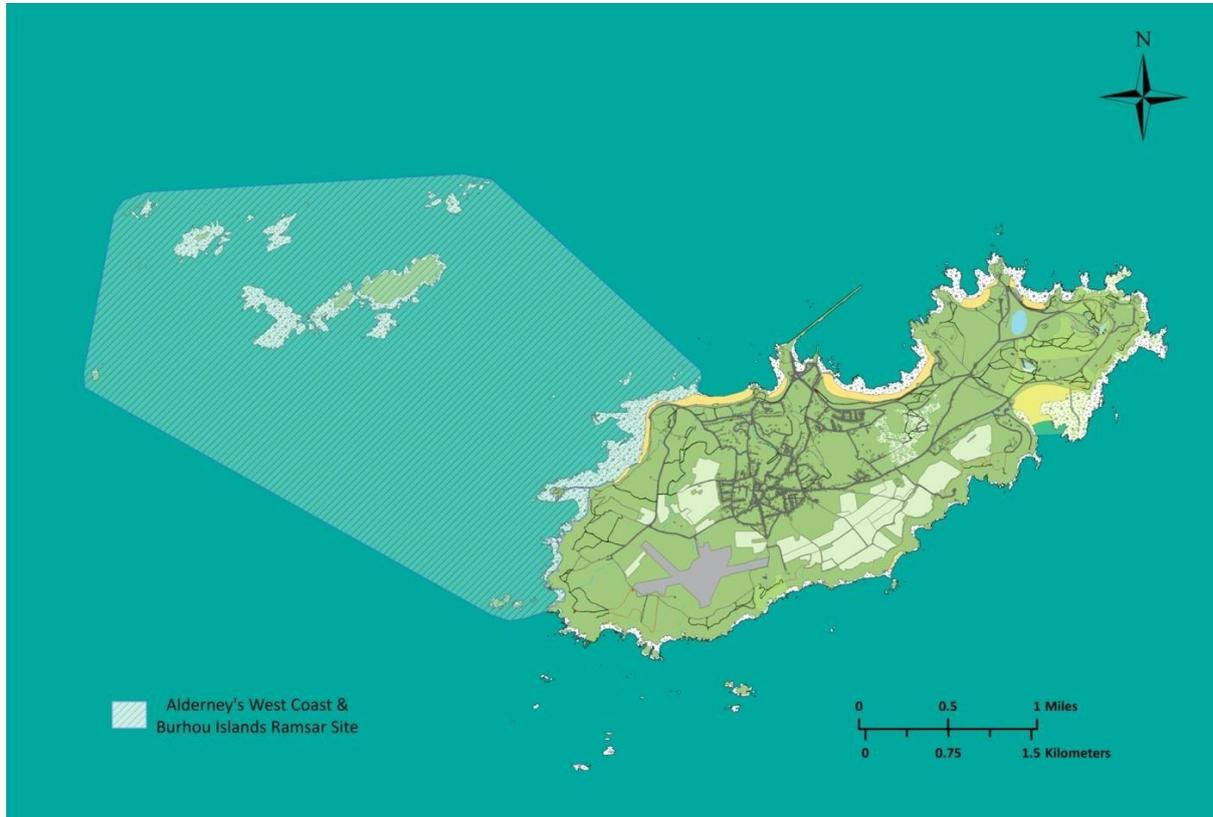


Figure 1. Island of Alderney with the West Coast and Burhou Islands Ramsar Site highlighted.

The centre of the Ramsar philosophy is the wise and sustainable use of wetlands. To ensure that wetlands are sustained (conserved) they must be benchmarked and monitored. Where populations and environmental conditions are stable, no further action beyond monitoring is required. To help maintain or enhance the current conservation value of the site the AWT (on behalf of the SoA) will (a) monitor the key species and habitats (b) promote the site to a wider audience.

Where populations are unstable, additional studies with a targeted remit may be created. In practical terms, the Ramsar convention requires that management plans for each Ramsar site are developed by its stakeholders. The Annual Ramsar Action Plan sets out the objectives for the year ahead based upon verified monitoring techniques. This will identify any changes in populations and environmental conditions within the site. Annual Reports compiled at the end of each monitoring period will provide robust evidence for any trends in populations or environmental conditions.

In 2006, on behalf of the SoA, the GSC requested the support of the Alderney Wildlife Trust (AWT) in the preparation of a management strategy, as required under the commitments of the Ramsar Convention, and registered the AWT as the Alderney Ramsar administrators with the International Ramsar Secretariat in Geneva. The States of Alderney (SoA) have appointed, and part fund, the Alderney Wildlife Trust (AWT) and other 'activity organisations' to devise and implement monitoring and maintenance of the designated Ramsar site in compliance with international legislation. The Annual Ramsar Action Plan provides the States of Alderney (SoA) with a plan of works for the year ahead. The Alderney Ramsar site strategy outlines the need to monitor seabird and other marine life population trends, threats to these and to continue the management of the populations

where necessary. The objectives of the strategy are assessed annually through various research projects and conservation management techniques.

Since 2007, the Ramsar site has been managed using Five-Year Management Strategies, with annual Action Plan and Review documents, prepared by the AWT on behalf of the SoA (all available online at (<https://www.alderneywildlife.org/conservation-projects/ramsar>)).

All Ramsar reports are developed and reviewed in consultation with the Alderney Ramsar Advisory Group (ARAG). Thereby, the SoA have established a process whereby Ramsar documents are reviewed by independent, non-conflicted, suitably qualified persons to ensure compliance with Ramsar principles and local animal welfare legislation. Established in 2006 as the Alderney Ramsar Steering Group; updated to ARAG in 2021 when GSC issued a Terms of Reference for members, to offer technical advice in regards the management of the site to the States of Alderney and the AWT as site administrators. ARAG assess proposals before their presentation to the SoA in the effort to create robust and vetted management strategies. The group is made from experts (included individuals who work for the RSPB, BTO, States of Guernsey and States of Jersey). The ARAG are involved in reviewing all five-year management strategies, annual action plans and annual review reports as well as meeting annually to discuss the work.

While the Ramsar site has a clearly defined boundary (Figure 1.), the site's five-year and annual management plans and review documents may include specific habitats and species which may occur outside of this defined area but have a degree of interdependence with the site. This has occurred to ensure that monitoring and conservation measures (often including projects and species which occur within the Ramsar site) are properly documented and reviewed by the States of Alderney. This ensures a wider view is taken of species information (particularly important for those which are mobile and travel into the Ramsar Site) and conservation measures which protect species and habitats within the Ramsar site. Locations are clearly detailed within the report to ensure it is clear if a work item has occurred inside or outside of the defined Ramsar site. In April 2019, the GSC approved the updating of the current 2017-2021 Ramsar Management Strategy's title to include 'and other sites.'

All activities within Alderney's Ramsar site should be fully risk assessed and covered by the Activity Organisations' insurance and States of Alderney issued licences where applicable.

In early 2020, the SoA CEO's office outlined a process to create a new Terms of Reference (ToR) for parties involved in the Ramsar site. The SoA GSC has ratified the existing position of the AWT as administrators of the site on behalf of the SoA and requested AWT to support the development of Alderney's Ramsar Strategy 2022-2026 (ARS4). In early 2021, the SoA's GSC informed AWT that the new ToR were delayed. Due to the high workload in responding to the Highly Pathogenic Avian Influenza (HPAI) outbreak taken on by AWT and in particular the Ramsar Secretariat, among other commitments, development of the 2022-2026 Alderney Ramsar Strategy (ARS4) has now been delayed to 2023. This will also mean the SoA will have decided whether to pass the Alderney Biodiversity Strategy and if passed, ARS4 can be published under that document. This was reported to GSC in December 2022 and GSC ratified this delay on 17/02/23.

3. Objectives

To meet the objectives of the ARS3, and new recommendations following the 2022 Ramsar Review, the following objectives are to be completed in 2023*.

**Please note that by approving this plan, the General Services Committee of the States of Alderney agrees to all proposed work herein to be undertaken by the Activity Organisations. Similarly, the Activity Organisations commit to the delivery of the work described (accepting the availability of resources and favourable weather conditions). The Activity Organisations understand the requirement to inform the appointed SoA representative through the 'Changes to Alderney Ramsar Work Programme' procedure (Appendix A) if any aspect of the work requires significant alteration from the parameters contained within this Action Plan..*

3.1 Seabirds and Shorebirds

- Monitor the seabirds and shorebirds breeding on Alderney, Burhou and other islets including a census of their population sizes and estimates of productivity for a) Puffins; b) Gannets; c) Fulmar; d) Common Terns; e) Guillemot; f) Razorbill and e) Ringed Plover.
- Develop the use of 'citizen science' to allow timelier analysis of a greater proportion of remotely recorded productivity surveys.
- Evaluate the validity of the Puffin 'end of season AOB count' alongside the ARAG and consider using video data from PuffinCam to validate the AOB data.
- Work with stakeholders to develop a survey response to HPAI in Alderney's Gannets. Programme of enhanced monitoring on Les Etacs and Ortac including: Repeated AOS productivity across Les Etacs, impact of previous HPAI infection on productivity of Gannets on Les Etacs and Ortac, collection of blood samples to test for HPAI antibodies, collection of tissue samples from deceased birds with black-eyes.
- Facilitate more frequent censusing of the gannetries and explore the option of using drones instead of piloted aircraft.
- Investigate the impact of anthropogenic materials on Northern Gannets including a) recording instances of entanglement and mortality; b) observations of material returned to the nest site and; c) opportunistic seabird necropsies (in collaboration with AAWS).
- Work with Jim Robinson (Director of the Natural Environment Department, States of Guernsey) to review the potential impacts of the of proposed offshore developments, alongside consideration of low productivity, population plateau, and the HPAI outbreak within Gannets to formulate a plan for the continuation and development of the Track a Gannet (TaG) project.
- Visit Ortac to retrieve the geolocators that still need to be recovered and collect re-sightings of colour-ringed birds.
- Continue to postpone the Lesser Black-Backed Gull census to 2024 but maintain oversight and consider doing additional counts if a drastic reduction in numbers is apparent in 2023.
- Obtain counts of other breeding seabird species (not listed above) from around Alderney's coast and the south coast islets, and of Herring Gulls on rooftops.
- Deploy acoustic monitoring devices in June to monitor for presence of Manx Shearwaters on Burhou.
- Seabird ringing (undertaken by the Alderney Bird Observatory) including a) Gannets; b) gulls; c) Storm Petrels; d) auks; e) Shag.
- Monthly WeBS surveys.
- Redeploy mitigation measures aiming to improve Ringed Plover breeding success and review measures to limit predation.
- Request the collection of any additional data on Cormorants nesting on Little Burhou and Shags and auks on Coque Lihou before ringing activities are undertaken.

- Request the CIBRS consider the colour ringing of nesting adult Ringed Plover and their chicks to aid monitoring and improve understanding of their demography and request ABO carry out this work. Any proposal will then be passed to GSC for consideration with ARAG advice appended.

3.2 Terrestrial

- Monitor presence of rats through maintenance of the bait stations on Burhou, L'Etac de la Quoiré, Twin Sisters, Coque Lihou, Hanaine Bay stack and on the shoreline adjacent to L'Etac de la Quoiré, Twin Sisters and Hanaine Bay stack.
- Control rats on Houmet de Pies and Fort Houmet Herbé in collaboration with the SoA Public Works Department.
- Deploy remote cameras at known auk nesting sites to investigate the potential impact of rats and other predators on their breeding performance.
- Redeploy alternative trapping method at Common Tern nesting sites that is immediately lethal, humane and non-toxic (e.g. Good Nature™ A24 traps).
- Devise a bio-security plan for Burhou and Coque Lihou.
- Continue monitoring bats on Burhou as part of the Bailiwick Bat Survey.

3.3 Marine

- Conduct a Phase I habitat survey of the Islets; Ortac and Les Etacs.
- To complement intertidal habitat biotope surveys completed at Hanaine Bay and Burhou, conduct a quantitative intertidal species assessments within selected habitats.
- Continue Green Ormer population assessment with updated methodology.
- Continue monitoring crab populations with updated methodology.
- Continue Shoresearch surveys.
- Develop and undertake surveys as recommended within the 2023 – 2025 climate change driver assessment.
- Continue marine mammal monitoring, specifically Grey Seal boat-based surveys.
- Promote Seasearch surveys within the Ramsar site and training opportunities to the public.
- Replace Baited Remote Underwater Video (BRUV) equipment and update BRUV survey schedule to ensure sufficient survey effort.
- Continue to work with The Royal Society of Wildlife Trusts to develop a survey programme for the Planktoscope in 2023.
- Support the continuation of the Fish-Intel project in 2023.
- Begin a programme of seawater quality testing (dependent upon funding opportunities).
- Undertake a minimum of one beach clean survey, following the Marine Conservation Societies' survey methods.
- Support MSc projects within the Ramsar site in 2023.

3.4 Education and Outreach

- Install and maintain seabird monitoring cameras including 'PuffinCam' and 'GannetCam'.
- Review the placement of PuffinCam cameras.
- Continue providing educational boat tours on 'Sula of Braye' (March – October).
- Provide free educational boat tours for students at St Anne's School and offer a free boat tour of the Ramsar to everyone under the age of 16 on Alderney.
- Continue to provide public engagement and community awareness events and activities for the Ramsar site year round
- Promote opportunities for local people to get involved in citizen science projects on the Ramsar site in 2023

3.5 Advisory and Legislative

- Roll ARS3 forward into 2023, with minor updates from contributors.

- Develop ARS4, with involvement of all key stakeholders, on the newly agreed timeline.
- Work with the ARAG to deliver an effective programme of scientific work on the Ramsar site in 2023 and prepare ARS4, including consideration of the renewable energy developments and their potential impacts.
- Work with the Alderney Harbour Office and stakeholders to continue supporting the Puffin Friendly Zone (PFZ) off Burhou.
- Reinstall signage and raise awareness for the PFZ.
- Work with the Alderney Harbour Office and States of Alderney to form a protocol to deal with vessels which purposefully enter the PFZ during the Puffin breeding season.
- Reinstall temporary signage to alert public to sensitive wildlife such as breeding birds.
- Deploy updated HPAI signage in the event of an outbreak or a high risk of an outbreak occurring.
- Maintain links and collaboration with other Channel Island Ramsar Sites.
- Attend future pan-island Ramsar meetings to ensure Alderney's Ramsar site is represented.
- Continue to host and maintain the Channel Island Ramsar Website.
- Maintain links with the international community regarding HPAI and other issues which may arise.
- Complete the RIS update in 2023.
- Work with the 'HPAI working group' to respond to HPAI in 2023.

4. Further Details

4.1 Seabird Monitoring

Seabird monitoring will continue in accordance with the JNCC Seabird Monitoring Handbook (Walsh et al. 1995), RSPB guidelines and the 2017 – 2021 Ramsar Management Strategy (ARS3; (Wieckowski and Ferrar 2016) with adaptations as detailed and approved in the 2022 Ramsar Action Plan (Purdie et al. 2022b), unless otherwise stated. Data will be shared with the national Seabird Monitoring Program (SMP). This monitoring will enable us to measure baselines for these populations, in line with the aims of the Ramsar convention.

All activities involving the handling of wildlife will be covered by an appropriate licence from the States of Alderney, the local licensing authority. Detailed risk assessments to include mitigation measures for disturbance however caused, as well as issues of biosecurity, will be collated prior to accessing seabird colonies. Any works which involve entering seabird colonies will be subject to review should another HPAI outbreak occur in Alderney in 2023.

4.1.1 Atlantic Puffin Monitoring

The Puffins will be monitored from March to August using a variety of survey methodology. Productivity, as well as the establishment of key dates in the Puffin breeding timeline, will be assessed by remote observation of video recorded at the colony via PuffinCam. The Puffin population size will be assessed from early season raft counts (via boat-based surveys and 'PuffinCam'), and the on-island apparently occupied burrow (AOB) survey. The AOB survey will be validated against AOB's identified by PuffinCam. The AOB survey will also inform breeding distribution.

Instances of kleptoparasitism and predation will be monitored from recorded video and by controlling the cameras remotely in real time.

The use of citizen science will be developed in 2023 to enable a greater duration of footage to be reviewed.

4.1.1.1 Productivity

Productivity will be assessed by reviewing video recorded remotely via ‘PuffinCam’, following the same protocol used in the past three years (Clifford et al. 2020), with some adjustments due to the new PuffinCam set up; the same survey areas as reviewed in 2019-2021 will be reviewed, as well as new survey areas which have only been visible since 2022. This will enable accurate comparison of the productivity between years.

4.1.1.2 Population Assessment

The size of Burhou’s Puffin population will be estimated using data from two surveys; early season raft counts and an apparently occupied burrow (AOB) survey.

The maximum early season raft count, obtained from counts undertaken through April to mid-May, can be used as an approximation of the number of breeding pairs. This is because during this time, each puffin pair will be incubating their egg with one member of the pair within its burrow and the other at sea. Therefore, the maximum number of puffins seen ‘rafting’ on the water near the colony in this period likely represents the best approximation of the total number of pairs present. Only the raft counts made early in the season can be used as later both members of the pair may be absent from the colony searching for food to feed their hatched chick and non-breeding birds arrive boosting the number of birds present. The raft counts can be recorded via ‘PuffinCam’, or during boat-based operations.

To avoid any disturbance to the breeding puffins the AOB survey will be undertaken in late July or early August, as soon as it can be established that the last puffling has likely fledged and the breeding season is over. Surveyors will check all burrows for recent signs of occupation in areas known to be occupied across the island, following the same methodology as in previous years. AOB counts for each area surveyed will be compared with previous estimates. This survey will be validated by comparing how many of the AOBs identified by PuffinCam were successfully identified during the AOB survey.

Chance encounters with Storm Petrels still nesting within any examined burrows will be recorded, and where possible the nest contents examined to note the presence of any young. If an appropriately licensed handler is present, the adult may also be temporarily extracted to look for the presence of a ring.

4.1.1.3 Kleptoparasitism, Avian Interactions and Predation

Instances of kleptoparasitism, avian interactions and predation will be recorded when observed during productivity observations. The use of citizen scientists to review these interactions will be tested in 2023, which will enable a greater volume of video data to be analysed in a timely manner.

4.1.2 Northern Gannet Monitoring

Gannets will be monitored from their arrival until their departure. The 2022 HPAI outbreak will significantly influence the 2023 work programme, with a focus on interpreting the impact of HPAI on Alderney’s Gannets. Two HPAI working group meetings have taken place in early 2023 which have enabled stakeholders to work together with the General Services Committee (GSC), States of Alderney (SoA) civil servants and Alderney Ramsar Advisory Group (ARAG) members to develop the survey programme. Work scheduled for 2023 includes: an enhanced programme of productivity monitoring; a full census of Les Etacs and Ortac; an investigation into the impact of prior HPAI infection on survival and productivity; the Channel Island Bird Ringing Scheme (CIBRS) / Alderney Bird Observatory (ABO) metal ringing programme; the collection of the geolocators from the Track-a-Gannet (TAG) project to collect data on migratory behaviour; and the ongoing investigation into the impact of anthropogenic materials. A renewal of the colour ringing programme to estimate adult survival is being reviewed by the CIBRS committee at the time of submission.

4.1.2.1 Overall Productivity

Gannet productivity will be assessed on Les Etacs by observing a representative sample of nests from a vantage point on the adjacent Alderney coastline. The proportion of nests fledged from the sample will be used as a proxy for the productivity of the colony as a whole. Observations will be conducted following JNCC guidelines. They will be conducted weekly and commence early enough in the season so that sufficient data can be collected to ensure outcomes are not misinterpreted or lost. Sufficient observations should be made to identify non-layers so that the proportion of nonbreeders and single birds can be established and accounted for in the final productivity estimate and inform analysis of census data.

4.1.2.2 Repeat Productivity

In addition, a sample of 100 nests monitored since 2020 and a sample of 100 nests from the areas of North-stack and West rock monitored in 2022 will be observed again to investigate a) if some apparently occupied nests/ breeding pairs are consistently successful or not at raising chicks; b) if the breeding pairs from these nest sites consistently begin to nest at the same time of year, c) if the incidence of non-breeding occurs more often at some nest sites than others and d) nest outcome during HPAI outbreak affects their breeding performance in 2022.

4.1.2.3 Impact of ‘black-eye’ on productivity

HPAI can cause the iris of Gannets to turn black. By recording this symptom alongside productivity observations, we can interpret its impact on breeding success. To accurately record presence of black-eyes photographs need be taken from boats near the colony. Therefore, a new productivity survey from boat-based observations is planned. A sample of 100 AOS from at least two faces of Les Etacs will be monitored following the methods described in Section 4.1.2.1.

This may provide a means of assessing Gannet productivity on Ortac and thereby assess the long term impact of HPAI on that colony. The Ortac colony lies over three miles from mainland Alderney so observations are more difficult to attain, and furthermore, anecdotal observations indicate that Gannets at Ortac are more susceptible to disturbance by boats than those nesting on Les Etacs.

Any productivity estimate from Ortac, if it can be reliably attained, will have particular value. This is because it could be integrated with other data also obtained from Ortac such as chick ringing, adult colour ringing and the TAG project.

4.1.2.4 The ‘Track-a-Gannet’ (TAG) project

There is a need for up-to-data information on the movements of Alderney’s Gannets to understand the potential impact of international windfarm developments on the colonies. The foraging ranges of Gannets vary year-on-year, and the effect the HPAI outbreak of 2022 will have on their movements is unknown.

In the 17/02/23 GSC meeting the Committee agreed to accept the support of Jim Robinson (Head of Natural Environment Department SoG) and the AWT to review the developing status of French windfarms and the potential impacts that they might have on Alderney’s Waters. They will seek advice from the ARAG and report to GSC with updates and guidance which may affect the future management and monitoring of the site.

This may include seeking to renew the TAG project, or an equivalent, which could provide current data on the birds’ movements in the breeding season to help inform on-going marine spatial planning in the English Channel. It could also reveal aspects of their foraging behaviour that could be causing declines in productivity and investigate any relationship between prior infection with HPAI and movement ecology. Funding for such work might be sought from external developers who need data on Alderney’s populations to respond to development obligations under the EU Environmental Impact Directive 2014 (The European Parliament and The Council Of The European Union, 2014).

Aside from this, the objective for the TAG project in 2023 will be the recovery of the geolocators deployed on Ortac in 2017 and 2020. This is resource dependent and requires licenced ringers to be available. The data obtained from the geolocators recovered in 2019 and 2020 provided a glimpse of how Alderney's gannets spend their time in the non-breeding season but the recovery of more data will be required to better assess our gannet's movements in the winter.

The loci of the birds fitted with geolocators on Ortac in 2017 and 2020 has been kept on record so that the potential sighting and re-capture of these birds to retrieve their geolocators can be undertaken more easily and with minimal disturbance to the colony. Geolocator retrieval will be undertaken by a small team with an appropriately licensed ringer and will follow procedures set out in previous years to minimise the impact on the birds.

If sufficient geolocators can be recovered, their data and the migratory behaviour revealed, will be compared with what has been established from conventional ringing so far as well as other geolocation studies from gannetries elsewhere in the species range.

4.1.2.5 The impact of anthropogenic materials

The impact of anthropogenic materials on Gannets will be monitored as in previous years to maintain oversight of the problem. This includes the recording of instances of entanglement and observations of material brought to the nest site.

Seabird necropsies will be undertaken opportunistically in collaboration with the Alderney Animal Welfare Society (AAWS).

4.1.2.6 2023 Gannet Census

A full census of Les Etacs and Ortac is scheduled for 2023 following the methodology used in previous years (Purdie et al. 2022a). In addition to this, the possibility of a coinciding drone census will be investigated; if successful this may enable more frequent and cost-effective surveys in the future.

4.1.2.7 Gannet Colour Ringing

Redacted

At the time of submission this section is being reviewed by the CIBRS committee, GSC will be updated following their review.

4.1.2.8 Gannet Blood Sampling

To test for the presence of HPAI antibodies in Alderneys Gannets, blood samples will be taken in 2023 from Gannets which strand and potentially during ringing trips (See Section 4.1.2.7) by AAWS RVN's. These samples will be sent to the States of Guernsey Veterinary Officers who will forward for analysis in the UK.

This project is being led and funded by the States of Guernsey Veterinary Officers. It will enable us to track the level of immunity to HPAI present within Alderney's colonies, which can in turn inform management.

4.1.2.9 Gannet Tissue Sampling

Tissue samples from Gannets which strand dead and have 'black-eyes' will be taken by AWT Ramsar Secretariat and sent on by AAWS RVN's to the States of Guernsey Veterinary Officer to investigate the physiological impact of this condition on the birds.

4.1.3 Northern Fulmar monitoring

The number of sites occupied by breeding pairs of Fulmar around Alderney's coastline and inshore islets will be assessed by observing apparently occupied sites from the sea cliffs and during boat-based surveys. Productivity will be assessed by recording the contents and outcome of these sites. Recording protocols will follow JNCC guidelines.

The locations and outcome of nest sites will be compared with previous records of the same sites to help us understand if some sites are more successful than others.

4.1.4 Common Tern monitoring

Estimates of Common Tern productivity and colony size will be monitored from vantage points on shore with additional data provided by the ABO from any ringing undertaken. The collection of these data will be requested prior to the ringing trip occurring.

Adequate protection from rat predation will be implemented wherever possible, noting that the terns are not especially site faithful, and locations previously used to nest and currently protected with rat control measures may not be used every year. Importantly, as soon as the terns occupy an unprotected site, new rat control measures will be imposed to minimise potential nest loss. Consider deployment of A24 lethal traps on the onshore area adjacent to the tern breeding area to reduce the likelihood of an incursion. If avian predation should again appear to be impacting breeding terns, supplementary feeding of these predators may be attempted (resource dependent).

The Foreman of Public Works will be asked to erect temporary signage warning the people of the presence of the tern colony as in previous years, with the permission of relevant landowners, whenever the birds choose to occupy sites accessible to the public (see section 4.5.5).

4.1.5 Ringed Plover monitoring

The number of nesting pairs and their productivity will be monitored on Alderney's beaches throughout the breeding season. Following the success of beach cordons in 2022 (Purdie et al., 2023, unpublished) these will be redeployed in 2023. Permission was granted under a Building and Development Control Committee planning application for these cordons up until 2025, so the permission does not need to be renewed for 2023.

Temporary cordons and signs will be set up around Ringed Plover nests and nesting areas on Platte Saline and in Saye Bay.

Permission to erect other temporary signage warning the public of other sensitive breeding birds may also be sought from the States of Alderney where disturbance may occur (see section 4.5.5), using a SoA approved format.

The signage will inform people of the birds' presence, encourage them to avoid the vicinity and keep their dogs under control. The signage will be removed once the birds have finished nesting.

A request will be made that the CIBRS consider the colour ringing of nesting adult Ringed Plover and their chicks to aid monitoring and improve understanding of their demography. A request will be made that the ABO carry out this work. A final proposal for the project will be passed to GSC for consideration with ARAG advice appended.

The pair of Ringed Plover nesting at Saye have been consistently predated by a breeding pair of Carrion Crows which nest near the beach. In the last two years, these crows have been identified as causing four out of six nesting attempts to fail, with half of these failures occurring due to predation post-hatching, causing the loss of six chicks (Purdie et al. 2022a, Unpublished). This means that despite these Ringed Plover nesting in suitable habitat, and having the highest clutch survival of any area on the island in the last five years, no chicks have been successfully fledged at Saye since 2017. Limited crow control at Saye may therefore substantially increase the resilience of the Alderney population of Ringed Plover.

AWT ecologists therefore suggest controlling the crows at Saye bay and will consult with the ARAG including the States Vet. We have conducted a preliminary review of four options: (a) lethal control of the breeding pair of crows, (b) reducing the breeding output of the breeding pair of crows, (c) conditioned food aversion (CFA) to discourage predation of eggs, and (d) nest enclosures. From this

review, we advise against lethal control of the breeding pair, which might cause a greater number of non-breeding crows to encroach on Saye and lead to a net increase in the risk of nest predation (Cox et al. 2004). Furthermore, such action could have negative public relations effects both for the AWT and Ramsar. Unfortunately, we believe that CFA is similarly inappropriate in this context. While there is evidence that CFA, wherein artificial but visually similar eggs containing an unpalatable substance are used to condition crows against eating eggs, is effective at reducing egg depredation (Ferguson et al. 2021), we are not aware of any similar approach which reduces depredation post-hatching. Instead, the approach we are currently advising, while remaining open to other options, is to reduce the reproductive output of the breeding pair of crows. This can be achieved by coating eggs in oil, which prevents the diffusion of oxygen through the eggshell, and so asphyxiates the developing embryo (Blokpoel and Hamilton 1989). Oiling eggs in other species has been shown to be effective at preventing hatching irrespective of the timing of the oil application (Shonk et al. 2004), meaning that oil could be applied at the most appropriate stage to minimise welfare concerns of asphyxiating the crow embryos. The oil will be non-toxic and biodegradable, and only small volumes of oil are used per egg (~5 mL) (Martin et al. 2007), with the whole application process taking as little as two minutes per nest (Fernandez-Duque et al. 2019). The precise protocol for this control will be developed in consultation with the States Vet to ensure the minimal adverse impact to animal welfare. We anticipate that this approach, if adopted, would maintain the crows interest in nesting attempts rather than food gathering for chicks, and so would reduce the risk of depredation of the Ringed Plover nests. There is evidence for this pattern of behaviour in Ravens (Brussee and Coates 2018), which we hope will apply to the crows too. We suggest a three-year trial period, during which time careful monitoring of crow behaviour and their interaction with Ringed Plover at Saye, in combination with ongoing Ringed Plover nest monitoring, will inform as to the success of this method.

4.1.6 Other seabird monitoring

Boat based round-island surveys in combination with vantage point counts will be used to estimate the numbers of breeding Cormorants, Shags, gulls, and auks nesting around the coast of Alderney and its other islets. The surveys will be scheduled to take into account the breeding ecology for each species and will take place between late April and mid-June. Additional surveys will be scheduled if necessary.

A more complete census of the breeding Herring Gull population including those birds nesting on roof tops will be conducted for the second year running (Purdie et al. 2022a).

Also, to limit disturbance, the next census of nesting Lesser Black-backed Gulls nesting on Burhou will be scheduled for 2024. Oversight will be maintained and the AWT will consider doing another count in the interim period if drastic changes in numbers become apparent. A survey of Burhou for carcasses in October 2022 indicated that there had not been an exceptional increase in the number of carcasses compared to an average year, however, there may be justification for a census to report any impact of HPAI.

As in 2022, estimates of Guillemot and Razorbill population size, distribution and breeding success will be measured through a combination of round-island seabird surveys, vantage point surveys and remote camera trapping. The causes of nest loss will be investigated.

Core counts of all waterbirds present in Clonque Bay and on Platte Saline will be carried out each month for the national BTO Wetland Bird Survey (WeBS), (<https://www.bto.org/our-science/projects/wetland-bird-survey/taking-part/core-counts>). Counts will be carried following the standard WeBS protocols. Additional counts at other designated sites may also be conducted where time and personnel allow. All data will be submitted online in a timely manner.

4.1.7 Seabird Ringing

A traditional programme of seabird ringing using conventional metal rings supplied by the Channel Island Bird Ringing Scheme (CIBRS) will be carried out by Alderney Bird Observatory Trust Ltd (ABO). All data, including ringing totals, recoveries and controls will be reported in a timely manner for the annual review.

As per the schedule outlined in ARS3, the seabird ringing campaign will include the ringing of chicks (pulli) from the following species; Gannets, Cormorant, Shag, Great Black-backed Gull, Herring Gull, and Lesser Black-backed Gull Common Tern plus adult or immature Storm petrels caught by mist net. It may also include the capture by hand of full-grown and young Razorbill and Guillemot. It may also include the colour ringing of adult Gannet (See section 4.1.2.7). Other species chanced upon incidentally such as Peregrine Falcon, Fulmar, Oystercatcher and Rock Pipits may also be ringed during seabird ringing operations at the discretion of the ringer in charge. All seabird ringing trips will be carefully planned to balance the need for data acquisition against likely disturbance.

CIBRS/ABO ringers will provide a count of the apparently occupied Cormorant nests on Little Burhou recorded during their annual ringing trip. They will record nest data including, when feasible, the number of nests present and the brood or clutch sizes so that estimates of productivity can be made and compared between years. A boat-based count scheduled by the AWT will also be undertaken in case a ringing trip cannot occur for any reason with ABO & CIBRS representatives offered the opportunity to take part.

4.2 Terrestrial

4.2.1 Rat control

Rat presence will be monitored on Burhou, L'Etac de la Quoire, the Twin Sisters stacks, Coque Lihou and the Hanaine Bay stack. The number of bait stations on Burhou and Coque Lihou has increased to improve AWT's ability to detect an incursion and this will be maintained. Stocks of toxic bait will be maintained should an incursion be detected on Burhou or Coque Lihou. The programme of rat control to protect nesting seabirds from predation will continue in collaboration with the SoA Public Works Department, resources and weather permitting, at Fort Houmet Herbé and Houmet de Pies. To help counter the threat of summer incursions by rats, an additional alternative trapping method (Good Nature™ A24 traps) will be used for the second year running. They are immediately lethal whilst also being humane and environmentally safe to leave in place between checking dates. The maintenance of all permanent bait stations will be subject to review following periodic environmental risk assessments.

As in 2022, a close watching brief will be maintained on any species sensitive to rat predation with particular attention paid to the whereabouts of the nesting Common Terns. Deployment of new bait stations may be required at short notice should the terns select a site not under the current control plan.

Remote cameras will be deployed on known Guillemot and/or Razorbill nesting sites to investigate the potential impact of rats and/or other predators on their breeding performance. Locations of any/all cameras will be shared with the CIBRS/ABO ringers in advance of any seabird ringing activity where the bird ringers may come into contact with any deployed cameras.

The bio-security plans for Burhou and Coque Lihou will be developed to help ensure any incursion by rodents is treated effectively and in a timely manner. This will include eradication and public outreach plans. A method to monitor for the presence of rats during the seabird breeding season should be investigated, for example, there may be potential for using audio recording equipment or camera traps to monitor for rodent presence and relay this information to the mainland via the PuffinCam's internet link.

4.2.2 Bat surveys on Burhou

Presence of bats on Burhou will continue to be monitored by the deployment of acoustic bat detectors as part of the Bailiwick Bat Survey.

4.3 Marine

The marine survey programme is designed to establish baselines and track any changes over time in populations and habitats in the Ramsar site, in line with the aims of the Ramsar convention, through a range of habitat and species surveys, detailed below.

4.3.1 Rocky intertidal surveying

4.3.1.1 Phase I intertidal Tidal Islets: Ortac & Les Etacs

Phase I intertidal habitat mapping will be carried out for the intertidal zone of Ortac and Les Etacs. Surveying will follow JNCC Procedural Guideline 1-1 Intertidal Resource Mapping using Aerial Photographs (Davies *et al.*, 2001). Work will be to be undertaken during low spring tides and will likely occur during April or May 2023.

4.3.1.2 Quantitative intertidal species assessment of Burhou and Hanaine Bay

A species survey will be conducted on Burhou and Hanaine Bay. This will involve continued monitoring of established sites to allow for year-on-year comparisons. On Burhou work will be undertaken post the sensitive seabird breeding season during low spring tides and will likely occur during September 2023.

4.3.1.3 Shoresearch

Shoresearch walkover surveys will continue to be conducted in 2023 to build baseline presence/absence data for the Ramsar Site's intertidal habitats, and to monitor presence of invasive species and climate change indicators. The potential for conducting other Shoresearch surveys (e.g. sediment survey, quadrat survey; [Shoresearch | The Wildlife Trusts](#)) will be investigated.

4.3.1.4 Climate change driver assessment

AWT will develop and undertake surveys as recommended within the 2023-2025 climate drivers assessment. For 2023, this will include qualitative assessments of coastal erosion through-out the intertidal areas of the Ramsar Site.

4.3.1.5 Green Ormer population assessment

Green Ormers will be surveyed and tagged during dedicated surveys but also opportunistically during other survey work. Repeatable, quantitative, surveys in designated survey areas will be used to increase the quality and usefulness of data collected. The programme of Ormer tagging is undertaken in conjunction with La Société Guernesaise. During each survey, any Ormers found will be measured, quality assessed and, if large enough, fitted with a small plastic numbered tag for future identification. The schedule will be updated for 2023 to ensure repeat surveys are conducted at each survey area in 2023.

4.3.1.6 Crab surveying

Crab abundance and population dynamic surveys will be conducted throughout the year, following States of Jersey methodology which was updated in 2022 to include repeated transects at the same locations to increase quality and usefulness of data collected. Photos will be taken of crabs to monitor potential diseases. The schedule will be updated for 2023 to ensure three repeat surveys are conducted at each survey area in 2023.

4.3.2 Benthic ecology and topography

4.3.2.1 Seasearch

Liaise with and support the regional Seasearch group, Alderney's Seasearch snorkel group and local/regional scuba divers in a programme sub-tidal marine life survey (resource dependent). Ensure completed survey forms are submitted to the local Seasearch co-ordinator and the list of species encountered are input to the local record centre and national biodiversity network. Advocate

for further Seasearch dives within the Ramsar site and training for residents of Alderney to increase data collection.

4.3.2.2 BRUV

Baited Remote Underwater Video (BRUV) surveys will continue in 2023 with updated camera equipment. Video data will be analysed to record species presence. Data will be maintained by the AWT and submitted to the local records centre to inform species presence and abundance. The BRUV survey schedule will be updated to ensure sufficient data is collected. The BRUV will be deployed on public boat trips to increase the amount of data collected, and as a powerful educational tool.

4.3.3 Pelagic surveying

4.3.3.1 Plankton

AWT will continue to work with The Wildlife Trusts (TWT) to develop a survey programme and project for the Planktoscope inshore plankton monitoring device in 2023.

4.3.3.2 Fish-Intel

The Fish-Intel project is a three-year project which started in 2022 and has seen a Channel Island wide network of acoustic monitoring of commercially important fish species and cetaceans.

On Alderney this includes two survey sites where acoustic receivers, which monitor tagged fish, will be deployed together with F-pods, which monitor the acoustic communications of cetaceans. These are located off Hanaine bay/Burhou and Longis bay.

This project is run by Jersey's Marine Resources team and Plymouth University, and AWT will offer support if required.

4.3.3.3 Seawater Quality Testing

AWT will work with the States Public Work department on behalf of the SoA to continue developing and begin the programme of seawater quality testing in 2023.

4.3.4 Marine Mammal surveying

Marine mammal data are collected from dedicated surveys and from casual sightings. Records will be maintained for both cetaceans and pinnipeds, and submitted to the SeaWatch foundation and local records centre.

4.3.4.1 Effort-based Grey Seal surveying

The surveying of Grey Seals across the Channel Islands and the adjacent French coastline is coordinated by the Groupe Mammalogique Nomand (GMN) and undertaken locally by the AWT. Surveys are undertaken on dates agreed by the network and occur during the lowest spring tides of each phase of the grey seal reproductive cycle. Findings are collated regionally to inform population trends.

4.3.4.2 Grey Seal Identification

All individuals seen during the surveys will be photographed whenever possible to obtain high resolution images. Images of individuals with distinguishing fur patterns and other features will be collated and added to a local Identification (ID) catalogue. The ID catalogue can then be used to quantify re-sightings of individuals and generate population estimates.

4.3.4.3 Cetaceans

Opportunistic recording of cetaceans should continue in 2023 with photographic records obtained where possible. This includes those taken during boat-based activities, and from public sightings data.

Furthermore, two F-pods, which monitor the acoustic communications of dolphin, will be deployed in 2022 as part of the Fish Intel project (see section 4.3.3.2).

4.3.4.4 Marine Mammal Strandings

Support will be given to local British Marine Life Rescue Divers (BMLRD) if a marine mammal stranding occurs. The management of marine mammals on our shores (those subject to human disturbance) will be coordinated through BMLRD trained staff.

4.3.5 Academic projects

Support and lead for academic projects will be continued in 2023. In 2023 AWT will host two MSc's, one investigating marine invasives/biosecurity and their management on Alderney and one which will review historic Grey Seal data and monitoring methods used in the Channel Islands

4.4 Events and outreach

The events and outreach programme aims to promote and make the Ramsar site accessible to a wide range of people, especially residents, in line with the aims of the Ramsar convention. Education forms a cornerstone of this and is a common feature for all objectives detailed below.

4.4.1 LIVE: Teaching Through Nature.

Live streaming of wildlife webcams will continue in 2023. 'PuffinCam' and 'GannetCam' will be re-installed.

The video feeds will continue to be used to assist the seabird monitoring programme outlined in section 4.1. allowing 'live viewing' or real-time observation of both Puffin and Gannet colonies as well as the opportunity to review recorded video for later analyses.

The livestream will be available through the 'LIVE: Teaching Through Nature' Facebook page and the [AWT Website](#). The AWT will also maintain a live stream from the cameras at its wildlife information centre on Victoria Street, St Anne. From here it will be possible to remotely control the camera and expand the view available for set periods during the day i.e. when the cameras position does not need to be fixed for survey purposes. Continued interest in the cameras will be maintained through ongoing outreach.

A review of the webcams' community impact and how we measure this will be conducted, particularly for the local Alderney community, to optimise their benefits to the island. Additionally, work will continue with VisitAlderney to maximise the value of the cameras for tourism and marketing purposes for the island.

4.4.1.1 PuffinCam

'PuffinCam' will be reinstalled on Burhou in 2023 using the same equipment and procedures as in 2022, but with a slightly improved mounting design to improve stability and therefore reduce risk of camera failure due to strong winds (Purdie et al., 2023, unpublished). Placement of one of the cameras will be reviewed with the aim of increasing its outreach value. To minimise disturbance to the seabird colony on Burhou, installation will be made before Puffins make landfall in early April. The cameras will be uninstalled and removed at the end of the Puffin breeding season.

Any trips required for maintenance will be coordinated by the ARAG.

4.4.1.2 GannetCam

'GannetCam' will be activated again in 2023. The mounting for GannetCam will be updated to improve stability of the camera in strong winds. As the data link from Burhou to Alderney will be

used to relay the ‘GannetCam’ feed from the west cliffs of Alderney, the transmitter array will be kept in place on Burhou until the end of the Gannet breeding season.

4.4.2 Boat tours

The AWT operate an MCA Category 2 coded vessel named ‘Sula of Braye’ (hereafter “Sula”) to assist the Ramsar management strategy by providing an ‘on sea’ platform for marine research as well as access to the offshore islets and boat tours. The AWT will also support other boat operators with information on request, as to the Ramsar sites ecology, seabird populations etc, wherever possible, to help with their development of tour activities.

4.4.3 Free educational boat tours for Year 6 students at St Anne’s School

Free educational boat tours will be offered to students at St Anne’s School. Furthermore, as some may be unable to access this provision via the school all residents under the age of 16 will be offered a free educational boat tour ticket. In time, it is hoped that all children growing up on Alderney should have accessed the Ramsar site from the water. Feedback will be gathered regarding outcomes and impact from these tours to highlight the benefits of running free tours.

4.4.4 Community engagement and public awareness events

At least one public engagement event will be undertaken in the Ramsar site for World Wetlands day, Wildlife Week, National Marine Week, Alderney Week and the Wildlife Festival, drawing attention to the site’s species and habitats. Additional events such as rock-pooling and special boat trips, such as ‘pelagic trips’ to observe marine life at sea, will also be scheduled wherever possible. Fundraising events will continue to support the work involved in this programme.

In 2023 AWT aims to promote opportunities for local people to get involved in citizen science on the Ramsar site, in particular, through public intertidal surveys with ca. nine promoted throughout the year.

A plan will be developed to measure community impact for events within the Ramsar site, interactions and projects that we deliver within the community.

4.5 Advisory and Legislative

4.5.1 ARS4

The five-year Alderney Ramsar Strategy (2017-2021) (ARS3) has come to a close. It was delayed in 2021 due to a delay in responses to the first Alderney Ramsar Stakeholder Forum. Due to the high workload in responding to the HPAI outbreak taken on by AWT and in particular the Ramsar Secretariat, among other commitments, development of the 2022-2026 Alderney Ramsar Strategy (ARS4) was delayed to 2023, and ARS3 was rolled forward into 2023. This will also mean the SoA will have decided whether to pass the Alderney Biodiversity Strategy, and if passed, ARS4 can be published under that document. This was reported to GSC in December 2022 and GSC ratified this delay in (17/02/23). The Secretariat awaits GSC's guidance as to how to proceed with ARS4 in 2023.

4.5.2 Scientific Advisory

All activities, as well as the annual action plan and report, are currently reviewed in consultation with Alderney's Ramsar Advisory Group (ARAG). Any changes to the work programme outside of the Alderney Ramsar Action Plan will also be reviewed by the ARAG. The ARAG offers technical and expert advice on work proposals and outcomes on behalf of the States of Alderney.

In the GSC meeting (17/02/2023) the Committee agreed to accept the support of Jim Robinson (Head of Natural Environment Department SoG) and the AWT to review the developing status of French windfarms and the potential impacts that they might have on Alderney's Waters. They will seek advice from the ARAG and report to GSC with updates and guidance which may affect the future management and monitoring of the site.

4.5.3 The Puffin Friendly Zone

Support for the Puffin Friendly Zone via the Alderney Harbour Office and stakeholders will continue in 2023. The advertisement of the zone to water users will be developed through signage and media engagement as well as through publication with pilotage information for Alderney.

The implementation of a protocol to deal with vessels that purposely enter the PFZ will be reviewed. It is recommended that the avoidance of the zone potentially including a condition for commercial vessel licences issued by the Alderney Harbour Office.

4.5.4 Ramsar signage

Signage around Alderney's Ramsar site will be reviewed and maintained with updates made where appropriate.

4.5.5 Sensitive wildlife signage

As in 2022, temporary signage alerting the public to sensitive wildlife throughout Alderney (for example breeding waders on Platte Saline) will be deployed. Planned signage is detailed in Sections 4.1.4 & 4.1.5.

The SoA has given notice that it is appropriate that permission to deploy interim signs where there is an urgent need to prevent harm to breeding wildlife may be actioned through Richard Phelan, Head of States Works, who has standing permission from the SoA to erect signage necessary for the operations of the States.

The installation of signage for the protection of wildlife requires careful consideration which should be made on a case-by-case basis and will target only those who may inadvertently cause harm to wildlife. Installation will be subject to a documented assessment of the risks/ benefits.

4.5.6 Networking with other Channel Island Ramsar Sites

The maintenance of links and collaboration with other Channel Island Ramsar Sites will continue in 2023. Alderney will attend the Inter-Islands meeting in 2023, at which a pan Channel Island's Ramsar meeting will be held.

Alderney will continue to maintain the Channel Island Ramsar Website.

4.5.7 Networking with other Channel Island Ramsar Sites

International links developed in 2022 during the HPAI outbreak will be maintained in 2023 to ensure the best possible practice is followed when responding to HPAI.

4.5.8 RIS Update

AWT will work with the JNCC to update the Alderney Ramsar Information Sheets (RIS) in 2023.

4.5.9 HPAI in 2023

A response plan to a potential HPAI outbreak in 2023 will be prepared alongside the ‘HPAI working group’, which is hosted by the GSC and includes representatives of AAWS, ABO, ARAG, AWT, CIBRS and States Public Works. The formation of this group will allow for effective communication and will enable meetings to be called quickly should the situation develop. The response will follow the same, prevention, action, public engagement strategy as in 2022.

A pan-channel Island HPAI working group has been set up by the AWT Ramsar Secretariat (reported to GSC in 2022, set up in 2023) and includes representatives from the ABO, CIBRS, Government of Jersey, Government of Guernsey, States Veterinary Officers of Guernsey and Jersey, Sark, the National Trust for Jersey and a range of other NGOs. This has allowed information to be rapidly disseminated across the islands. From the original meeting Jersey Biological Records centre to began development of a pan Channel Islands reporting form in collaboration with AWT. The pan-Channel islands group will be maintained to allow for quick dissemination of information, and the reporting form will be developed and passed to the ‘HPAI working group’ when a workable draft is ready.

5. References

- Blokpoel, H., and R. M. Hamilton. 1989. Effects of applying white mineral oil to chicken and gull eggs. *Wildlife Society Bulletin*:435–441.
- Brussee, B., and P. Coates. 2018. Reproductive success of Common Ravens influences nest predation rates of their prey: implications for egg-oiling techniques. *Avian Conservation and Ecology* 13.
- Clifford, D., J. Bush, M. Broadhurst-Allen, and J. Hart. 2020. Alderney's West Coast and Burhou Islands Ramsar site and Other Sites Annual Review 2019. Page 127. Alderney Wildlife Trust, Alderney.
- Cox, R., S. E. Baker, D. W. MacDonald, and M. Berdoy. 2004. Protecting egg prey from carrion crows: the potential of aversive conditioning. *Applied Animal Behaviour Science*, 7:325–342.
- Ferguson, A. J., R. L. Thomson, M. J. Nelson-Flower, and T. P. Flower. 2021. Conditioned food aversion reduces crow nest predation: An improved framework for CFA trials. *Journal for Nature Conservation* 60:125970.
- Fernandez-Duque, F., R. Bailey, and D. Bonter. 2019. Egg oiling as an effective management technique for limiting reproduction in an invasive passerine. *Avian Conservation and Ecology* 14.
- Martin, J. M., K. French, and R. E. Major. 2007. The pest status of Australian white ibis (*Threskiornis molucca*) in urban situations and the effectiveness of egg-oil in reproductive control. *Wildlife Research* 34:319.
- Purdie, A., M. Broadhurst-Allen, D. Whitelegg, M. Lewis, and J. Horton. Unpublished. Alderney's West Coast and Burhou Islands Ramsar Site and Other Sites Annual Ramsar Review 2022. Page 118. Alderney Wildlife Trust, Alderney.
- Purdie, A., J. Bush, J. Hart, M. Broadhurst-Allen, D. Whitelegg, and J. Horton. 2022a. Alderney's West Coast and Burhou Islands Ramsar Site and Other Sites Annual Ramsar Review 2021. Pages 1–99. Alderney Wildlife Trust, Alderney.
- Purdie, A., J. Hart, M. Broadhurst-Allen, D. Whitelegg, and J. Horton. 2022b. Alderney's West Coast and Burhou Islands Ramsar Site and Other Sites Annual Action Plan 2022. Pages 1–20. Alderney Wildlife Trust, Alderney.

- Shonk, K. A., Kevan S. D, and Weseloh D. V. 2004. The effect of oil spraying on eggs of double-crested cormorants. *Environmentalist* 24:119–124.
- Walsh, P., A. de Nevo, D. J. Halley, I. W. M. Sim, and M. P. Harris. 1995. *Seabird monitoring handbook for Britain*. Joint Nature Conservation Committee, Peterborough.
- Wieckowski, F., and A. Ferrar. 2016. *Alderney West Coast and Burhou Islands Ramsar Site Management Strategy 2017-2021*. Page 24. Alderney Wildlife Trust, Alderney.