



SUPPORTING SHOREBIRD CONSERVATION

Registered Charity (England and Wales)
1183748

Wader Quest Objectives:

To raise public awareness about, and to promote an understanding and appreciation of, waders or shorebirds (birds of the sub order Charadrii and to include the family Turnicidae, as defined by the Handbook of Birds of the World Volume 3 del Hoyo, Elliott and Sargatal eds 1996).

To raise funds, which, at the discretion of the Board of Trustees, is to be used to make small grants or carry out appeals for wader conservation projects worldwide.

To promote for the benefit of the public the conservation and protection of waders or shorebirds and improvements of their physical and natural habitats.

To advance the education of the public regarding the conservation and protection of waders or shorebirds and their natural habitats.

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Wader Quest Articles

Captive Breeding And Headstarting Explained - By Rick Simpson

'Death is a part of life; extinction is quite another thing, it is the end of birth.'

China: Between Clouds and Dreams – by Phil Agland, produced by River Films.

Introduction

Martha the Passenger Pigeon is famous for all the wrong reasons. She should have been an anonymous bird among billions, but she became the last living soul of her species. She died alone in Cincinnati zoo in 1914.

It must have been clear to all and sundry that the species was about to disappear long before Martha's demise, many birds have been kept in captivity for thousands of years and so the techniques to breed birds in captivity were, even then, well

known. And despite there being three colonies in captivity it never occurred to anyone to use these skills to save the species from extinction, the mind-set was not concerned with conserving or preserving species in those days; a tragic failure on humanity's part.

Now things are very different. I wish that by that I meant that we are taking greater care of our environment and species are not in danger of extinction, sadly that is not the case, there are probably more bird species today facing that fate-worse-than-death than ever before. What is different now though is that we are at least thinking about how we can prevent such things from happening.



Martha the Passenger Pigeon - CC Tom Evanson

Captive Breeding

One prevention method is captive breeding. This method is expensive and not always effective, but it could be the last chance of a species if all else has failed.

If the existence of a species in the wild looks untenable, we can take some of those



Spoon-billed Sandpiper chick hatched in captivity
- Paul Marshall: Wildfowl and Wetlands Trust

birds into captivity with a view not just to keeping them alive as long as possible, but trying to give them the conditions they need to breed; thus perpetuating the species. A species becomes extinct when it can no longer produce enough recruits to replace those that are dying. Keeping free-living, wild birds safe and preventing them from being killed or dying early is of course the aim, but when that doesn't happen then we have to step in and find another way.

Captive Breeding And Headstarting Explained - By Rick Simpson

One such way is to establish breeding populations in captivity; this means that –



Northern Red-breasted Plover
- Elis Simpson

- The species still exists if the wild population fails
- There is a pool of birds from which recruits from the wild population can be selected to:
 - ◊ Boost current populations (example Black Stilt)
 - ◊ Reintroduce species to suitable habitat (example Shore Plover)
- It buys time if habitat is unsuitable, to repair the environment for later reintroduction (example California Condor)
- It may provide the opportunity for genetic mixing in discrete populations (example Philippines Eagle)
- A species bred in captivity can be released into a different habitat into which wild populations are reluctant to spread (example Mauritius Kestrel).
- Captive bred populations can provide information for scientific research with a view to conserving the species (example New Zealand Dotterel – now Northern and Southern Red-breasted Plover).

There are of course negatives to be considered in captive breeding –

- The numbers of individuals needed for a viable population can make housing and caring for them complicated and expensive. This may determine the numbers involved. If the numbers are too low this makes the population unviable due to inbreeding or simply a restricted choice of mate.
- The birds' behaviour may be affected by captivity, thus if birds are to be released they may not have the ability to survive due to altered;
 - * predator avoidance
 - * foraging patterns
 - * sleep patterns
 - * activity levels
 - * social interaction with others of the species

Captive breeding is not the silver bullet, it is not the answer to preventing population declines, it is however a safety net that can make the difference between a species existing or not.

Captive breeding differs from headstarting in that the whole reproduction process occurs in captivity. The adults are captive, the eggs are laid and hatched in captivity and the young remain in captivity unless they are selected to be recruits to a wild population.

Headstarting

In order to maintain or increase a population, a species needs to be able to breed in sufficient numbers to produce enough recruits to replace the older birds that die. These days with many parts of the world infested with introduced predators and imbalances in the ecosystem, as well as unsympathetic agricultural practices, this is no longer possible for many wader species and it is this that is causing modern population declines.

Headstarting is a method of circumnavigating the most vulnerable part of a ground nesting bird's life, from egg to fledging. Eggs are taken from wild nests and hatched in captivity; the chicks are provided with suitable feeding opportunity, protected from predators, and then released once they have fledged.

Headstarting is possible due to a number of traits of nesting waders:

- 1) Removing the eggs from a breeding pair early means the adults are likely to lay a second clutch. This second clutch will be left with the adults to take their chances in the wild. Relaying after the loss of eggs is a perfectly natural response but the longer it is delayed after laying, the more energy the parents have invested in them and the probability of replacing them decreases. Once the chicks have hatched birds rarely relay if those chicks are lost.



Wader Quest sponsored incubator - WWT

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- 2) Almost all wader chicks are precocial, which means they do not have to be fed and they are able to get about by themselves within hours of hatching. At this stage their parents are there to help them find the best places to feed and to keep an eye out for predators, both of these factors are satisfied by the captive status of the birds.
- 3) Another factor that helps enormously is that migrating waders do not travel in family parties on the whole. Laying eggs takes a lot of energy and females once they have hatched the eggs will often leave the breeding grounds to go to the coast to fatten up ready to migrate. The males have not used up the same energy by laying eggs so stay a little longer to protect and guide the young. Once those chicks are fledged, the male's work is done and he too will leave for the coast. Young birds are then left to fend for themselves. They will often congregate in large flocks and will eventually leave the breeding grounds themselves, unaided by the adults and somehow still find their way to the stop over and wintering sites. It has been found that headstarted birds do not have any trouble migrating and entering the normal pattern of an adult's life.

Here are some examples of these processes in action.

Shore Plover.

The Shore plover is an endemic native of New Zealand which previously could be found along the coasts of the main islands. By 1870 they had disappeared from the mainland due to the introduction of alien predators such as rats, cats, ferrets, stoats and weasels.

In the early 1990s, New Zealand's Department of Conservation (DOC) started a captive breeding programme at Pukaha Mt Bruce Wildlife Centre, and later at Isaac Conservation and Wildlife Trust. From a captive population of around 6–10 pairs, over 500 captive-bred juveniles had been released into the wild by 2016.

In 2001 the DOC published a Shore Plover Recovery Plan 2001-2011. The goal was to maintain and/or establish wild Shore Plover in at least five locations with a combined population of more than 250 individuals.

To achieve this the islands had to be secure and free from the invading predators and a captive stock maintained with translocations of young birds to predator-free islands.

Captive-reared juveniles have been released on Motuora, Waikawa, Rarotoka, Mana and Motutapu in an effort to create five self-sustaining populations.



Shore Plover at Point England- Elis Simpson



Shore Plover OGYR- Elis Simpson

Wader Quest visited the Peacock Springs centre near Christchurch on South Island to see these birds in captivity. We were also lucky enough to find one of the free flying birds that had left one of the release islands and could be located on the mainland near Auckland.

Leaving the safety and sanctuary of the release islands is not unusual for these birds. One of the birds released on Mana Island off North Island with the ring combination Orange, Green, Yellow, Red shown in the picture to the left, abandoned its new home and somehow found its way back to the Isaac Conservation and Wildlife Trust at Peacock Springs, where it was discovered running up and down outside the breeding aviaries. It was re-caught and reunited with its friends. That bird now forms part of the permanent captive breeding stock.

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Black Stilt.

The Black Stilt is another endemic wader species to be found in New Zealand. It inhabits the braided rivers, tributary streams, tarns and swamps in the Mackenzie basin on South Island, only rarely wandering far from there. Their principle threats are predators, habitat loss and disturbance through human recreation in their riverside environment.

In 1981 there were just 23 birds remaining in the world. Since that time an intensive recovery programme has been in place. The DOC's captive breeding centre, near the town of Twizel in the Mackenzie Basin, plays an important role in the Black Stilt Recovery Programme in partnership with the Isaac Conservation and Wildlife Trust in Christchurch, where a number of breeding pairs are held in captivity.



Recently released juvenile Black Stilt - Elis Simpson



Captive Black Stilts creating the next youngsters for release - Elis Simpson

Eggs are collected from both captive pairs (captive breeding) and wild breeding pairs (headstarting). These eggs are then artificially incubated and the young chicks when between 3 and 9 months old are released into the wild. Since that all time low of 23 birds the population has slowly grown and in May 2020 the New Zealand's Ministry for Conservation said there were 169 adult birds in the wild. A marvellous achievement and the recent boost in numbers was due to effective predator control.

Whilst visiting Peacock Springs we were also able to see the Black Stilts in captivity and indeed saw them in the act of copulation, a heartening sight for a species whose existence depends on the captive breeding success story.

We were also lucky enough to catch up with a pair of Black Stilts at Lake Macgregor and we also came across a couple of hybrid birds where Black Stilts had mated with White-necked Stilts, another problem facing this Critically endangered species.

Spoon-billed Sandpiper.

The Spoon-billed Sandpiper is perhaps the most famous of all threatened waders around the world. It has been the subject of much high profile conservation, including both headstarting and captive breeding.

It was to raise funds to help the WWT captive breeding programme of this species that Wader Quest first existed, later morphing into the charity it is today. There were thought to be as few as 100 pairs of this bird in the wild in 2012 and the population was declining at such a rate that they would disappear in as few as five years. Protecting the birds in the wild was a priority and also the use of these two conservation tools was brought into play.



Spoon-billed Sandpiper chick at Slimbridge - Tim Ireland

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Wader Quest travelled to Thailand to see Spoon-billed Sandpipers in the wild, and were successful in that aim, seeing three together at Pak Thale.

Permission was granted by the Spoon-billed Sandpiper Task Force from the Russian government to collect and transport a number of Spoon-billed Sandpiper eggs from their breeding ground in north-eastern Russia to Slimbridge in the UK, the Wildfowl and Wetland's Trust's HQ. This went smoothly and the captive breeding stock was established. To start with no breeding took place. The team tried different tactics each year until in 2016 the first eggs were laid. These however produced chicks which did not survive. In 2018 a chick hatched and did survive through to fledging then met with a tragic fatal accident. However, in 2019 two chicks were hatched and both fledged. It had taken some time, but finally the conditions seemed to be right and the hope is that the population at Slimbridge will now grow.

Meanwhile, back in Russia, the Spoon-billed Sandpiper nests were still being raided by conservationists. The first brood of a nest was collected and hatched in captivity, and the resulting fledged birds released back into the wild. This has proved highly effective with more than 100 birds having been released in this way, a vastly larger number than would have survived in the wild and, in addition there were young from the replacement clutches fledged by the parents.

These headstarted youngsters have since returned to Russia and have bred, another great success for the team, and a positive sign that all may not yet be lost for this amazing bird with its incredible beak.



Spoon-billed Sandpiper at Pak Thale - Elis Simpson

Eurasian Curlew.

Rather closer to home, the same techniques for headstarting are being used to try to boost the population of Eurasian Curlews. This species has suffered tremendous declines due to a really low breeding success rate. Curlews are reasonably long-lived so the immediate effect of this population failure was not evident for a long time. However as older birds die off, it has become apparent that they are not being replaced by the next generation. This is a certain path to extinction and the very familiar and much loved Curlew is now considered to be Near Threatened. The main cause for this decline in breeding has been habitat loss particularly in lowland meadows where hay



Eurasian Curlew - Elis Simpson

production has been replaced by silage production. Here the grass is cut very much earlier than hayfields with devastating effect for unfledged chicks and eggs. Another cause for the decline is the over abundance of predators, particularly foxes and crows, which means even those nests that do not get destroyed by farm machinery are being taken by these predators.

The WWT is again involved on a project to headstart Curlew eggs, in part using an incubator that was donated by Wader Quest. They collected eggs from an MOD airfield in Norfolk where they would have been destroyed under license for aircraft safety reasons. These birds are being reared in captivity for eventual release back into the wild in Gloucestershire and hopefully they will survive long enough to return to their release sites to breed themselves where they can nest in peace unharmed by aircraft, farm machinery and predators.

In addition to this Curlew Country is another project aimed at increasing Curlew numbers. This has been running for five years and has, in that time, released many young Curlews into the Shropshire countryside, where there might otherwise have been none produced. It is clear that this species holds a special place in the hearts of not just birdwatchers but all people who love the wild countryside that this bird so eloquently characterises with its wonderful calls.

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Black-tailed Godwit.

Also in the UK, the RSPB and WWT are working together to boost the population of Black-tailed Godwits of the subspecies *Limosa limosa limosa* in a programme called Project Godwit. This subspecies was once widespread throughout the fens in eastern England but it disappeared due to the drainage of all the marshland. It is now classified as Near Threatened like the Curlews. The species didn't breed in the UK for around a hundred years. Then they came back but the growth of the population seems to be restricted, by the lack of breeding success. With fewer than 50 pairs in the country action is being taken by the RSPB and WWT to headstart eggs taken from the wild population in the Ouse Washes. The eggs are collected from nests and held at WWT Welney where the chicks are cared for in predator resistant aviaries after hatching. Once the young birds have fledged they are released back into the wild.



The aviaries at Welney and inset Black-tailed Godwit - Elis Simpson



Rick Simpson is Co founder, Board Chair and Executive Committee member of Wader Quest:

Rick has had many articles relating to waders and their conservation published and writes blogs and articles for the Wader Quest site, newsletter and the Rick Simpson Birding site. He is a sought-after speaker and amateur bird artist.