

PLOVERS

By Glen Holland & Dick Schroeder

Introduction: The plovers belong to the order Ciconiiformes, the family Charadriidae, and the subfamily Charadriinae, which encompasses 66 species in 11 genera, including many species commonly known as lapwings and dotterels. Plovers are generally found in pairs while breeding, but may occur in flocks of up to 200 birds outside the breeding season. They inhabit open country ranging from wetlands, seashores, and salt pans to grassland, old pastures and sports fields. They avoid tall vegetation. They rarely wade to forage, but feed mainly on insects and their larvae found in grass. Some vegetable matter is eaten as well. Pairs are highly vocal and territorial, and are well known for their brave aerial attacks on anything which threatens their nest. Plovers keep in regular contact through their calls, which include alarm calls to warn others of approaching danger.

Management: My recommendations for managing plovers in captivity is based on experience with the crowned lapwing *Vanellus coronatus* and the blacksmith plover *V. melanopterus* of Africa and the endangered shore plover *Charadrius novaeseelandiae* of New Zealand. In common with many other plovers, the crowned is a bird of purely terrestrial habitats; the blacksmith is usually associated with fresh water and estuarine habitats; and the shore plover is found entirely on rocky and sandy beaches. These habitat variations must be catered to in aviculture. If an appropriate habitat for the particular species kept is not provided, the chances of success are drastically reduced.

Plovers adapt very well to captivity, making the common species ideal for public displays. The aviary landscape for terrestrial species should correspond to either Habitat B or Habitat E, with plenty of open sandy areas combined with mowed lawns. A few shrubs will provide shelter, shade, and a place to hide from raptors flying above the aviary, which plovers are usually the first birds to spot. Species such as blacksmith and three-banded plovers *C. tricollaris* require the aquatic Habitat F, which is easily created.

A shallow pond, preferably with a natural mud base, surrounded by a few sedges, will provide a perfect environment. Shore plovers require a relatively sterile beach type environment. Our aviaries for this species have a pebble base with a few scattered grass tussocks and a continual stream of clean water flowing through the center. Aviaries for plovers and stilts should not include tall dense thickets of vegetation in which the birds may become entrapped, particularly when they are panicked or landing in a stressed state.

In extremely large aviaries, several pairs of some species can be kept together, as long as a sexual balance is maintained. All the birds should be placed in the aviary at the same time, as individuals introduced into an established group will be persecuted. Sometimes several species can share a large aviary; I have mixed crowned and blacksmith with no serious problems. Ideally, however, plover species should not be mixed, as most aviaries are not large enough to avoid fighting over territories. Plovers can, however, be kept with unrelated species, as they are not aggressive toward other birds.

Shore plovers are highly territorial. Because they are endangered in the wild, the captive population may play an important role in re-establishing the species in areas of its former habitat where it has been extirpated or reduced in numbers. For this reason, each pair should be afforded their own large aviary, perhaps 40 m (130 ft.) x 15 m (50 ft.), off public display. Territorial aggression is avoided by visual barriers between the pairs. Note the chart, in the chapter on STRESS, indicating the extent to which this species is affected by stress..

Foot problems, such as bumblefoot, or damaged feet in general, can be averted by placing the food bowl in the center of a shallow footbath containing a saline solution, which is easily prepared by mixing 350 g salt in each 10 liters of water. This strengthens the skin on the feet, making the birds less susceptible to cuts and infections. The saline water should be renewed every second day.

Diet: Unlike hand-raised birds, wild caught birds will initially take only livefood. By mixing livefood with other food items, the birds will gradually begin to accept an

artificial diet. The mixture should consist of soaked cat kibble, softbill mix, minced heart, and insects. Mealworms, bloodworms, and other livefood can be used to tame these birds to the point where they will feed from the hand. Shore plovers should receive around 20 mealworms per bird once a day. During the breeding season, the amount should be increased to 30 mealworms per bird twice each day. At this time, the mealworms should be dipped in a calcium supplement before being fed. Plovers spend much of their time hunting for insects in open areas. An aviary of sufficient size, with the proper habitat, will provide a good source of natural food. Water levels can be raised and lowered periodically to expose livefood on the pond margins.

Breeding: Provided they have a secluded spot, most plovers are willing to nest in captivity. Courtship display is rather meager; following copulation, one or both of the birds may raise either one or both wings over the back. The nest is a shallow scrape in the ground lined with a few pebbles and rootlets. The 2–3, and sometimes, in the case of shore plovers, 4 eggs are laid 24 hours apart. They are buff colored with numerous black, brown, and gray markings over the entire surface. Incubation is shared by both sexes. The incubation period is 28–32 days. If disturbed during incubation, the parent leaving the nest will give a distraction display with the wings and tail spread while either standing or crouching. As the chicks hatch, they join the parent which is not incubating. One bird remains on the nest until the entire clutch has hatched.

The adults feed the chicks by offering insects from the tip of the bill. Chicks grow rapidly, reaching adult size at only a month of age. They are sexually mature at 18 months. The removal of a clutch of eggs for artificial incubation will entice the adults to lay a second clutch soon after. In fact, shore plovers have laid up to four clutches in a season when all the eggs were removed for artificial incubation. As the chicks are easy to raise artificially and do not imprint on their keeper, I would recommend this practice, particularly for rare species.

Incubation and Hand Rearing: Plover eggs should be incubated at a temperature of 37.2°C (99°F), with a relative humidity of 60%. At hatching time, the temperature should

be reduced to 36.5°C (97.7°F) and the relative humidity increased to 66–70%. Squeaking and movement inside the egg are detectable up to two days before the egg hatches. Chicks should be left in the incubator for the first 8–12 hours, until their down is dry. After that, they can be removed to a brooder box with a temperature of 32–34°C (89.6–93.2°F). Plover chicks are often inactive in the brooder for up to 36 hours before they finally begin to move around and feed. The temperature can be gradually reduced until day ten, when the chicks will be comfortable at a room temperature of about 25°C (77°F). For shore plovers, which originate from a cooler climate, the temperature can be reduced to 22°C (71.6°F) at this stage. However, some heat should still be supplied over one end of the brooder. A substrate of river sand is ideal for plover chicks as it provides both good footing and a source of grit, which these birds require. Alternatively, rubber brooder matting or towels, which are easy to clean in a washing machine, can be used. A cardboard or wooden box with three open sides and a few grass tussocks can be provided as refuge for the chicks.

Young chicks soon begin to peck at anything that moves, and interaction with slightly older chicks will enhance this feeding behavior, as they quickly learn from their older siblings. Shore and blacksmith plovers will start feeding on live aquatic insects within two days of hatching. Livefood such as mealworms, white ants, etc., sprinkled on artificial food will assist in getting chicks on an artificial diet. With the larger plovers, food items such as thin heart strips and insects can be offered with a forceps, from which the chicks soon learn to take food. The heart should be moistened with a little water, and once a day a multivitamin and calcium supplement should be added. A shallow bowl of water, the base of which is filled with small pebbles, should be available from day one.

By the fourth day, the chicks will pick up food which is dropped in front of them. From day five, a bowl of food, consisting of a mixture of tinned dog food, softbill mix, minced heart and live insects, should be offered. Plover chicks require 24% protein in their diet. A diet that is too high in protein will result in leg problems. Chicks removed from the parents for hand-rearing will initially accept only livefood; they need to be trained onto the substitute diet. In warm weather, chicks of the larger species can be transferred to

outdoor rearing pens during the day when they are a week or more old. Such pens should have mottled sunlight and a coarse sand base. This will allow the chicks the exercise that is necessary for the development of healthy legs.

The following hand-rearing procedure has been successfully used to rear shore plovers.

Day 1–10: Fresh water is provided in a shallow tray 15 mm deep. This is replaced 5 times daily, and 200 or more small invertebrates such as boatmen, daphnia, etc. added each time. Insects must be collected from a clean source and, if stored before feeding, have their water changed daily. The artificial diet is offered ad-lib and replaced twice daily. It consists of a fine blend of the diet described for adults, with 25 g of blended chick starter crumbles. To this 50 small mealworms, 70 whiteworms and 20 small waxmoth larvae are added. As described for adults, the feed dish containing this mix is placed in a shallow tray of saline solution.

Day 10–20: The tray containing live aquatic invertebrates is reduced to 3 changes daily, whiteworms are removed from the diet, and the size of mealworms and waxmoth larvae offered increased to medium.

Day 20–30: The shallow food and water trays are replaced by trays that are 25 mm deep. Live aquatic food is given only once a day. The size of mealworm and waxmoth larvae is increased to large. Chick starter crumbles are removed from the diet.

Strict hygiene is enforced by moving the chicks to a clean brooder every second day. To ensure that they are gaining weight properly, chicks are weighed every second day for the first week and twice daily thereafter. Dehydration from overheating should be monitored by observing behavior; signs to watch for include panting, outstretched wings, and general lack of vitality. Legs and feet are checked to avoid problems. Healthy legs, feet, and toes are plump in appearance, as opposed to a shriveled appearance with the skin stretched tightly over the limbs. Aggression at food sources, particularly among chicks of mixed sizes, must be carefully monitored. At 30 days of age, fledglings can be placed in a

flock, but color bands should be fitted for the identification and possible removal of aggressive or submissive birds.

SPUR-WINGED PLOVER

by Dick Schroeder

Introduction: The spur-winged plover *Vanellus spinosus*, also known as the spur-winged lapwing, ranges across central Africa. Sexes are alike in these 35 cm (14 in.) birds. The crown, forehead, lores, and nape are black, as are the throat, breast, and belly. The sides of the face and neck are white and the upper body is grayish brown. The rump is white and the tail is black. These birds congregate in large flocks during the non-breeding season, but split off into pairs when ready to nest. They are very territorial when nesting and will defend their nest against any intruder, be it man or beast.

Management: I enjoy ground birds in my aviaries, and the spur-winged plover is among my favorite species. Only one pair can be kept in a flight, and it is a good idea not to mix other species of plovers or jacanas in with them. They are fine with any of the passerines. During the winter I have housed them with blacksmith plovers (*V. armatus*) without a problem, but I was quick to separate them before summer breeding season. They do well on grass or soil, but prefer a sandy or gravelly area for nesting. They also enjoy wading in a shallow pond, however, this should have fresh, flowing water to eliminate the chance of botulism, to which many of these birds are susceptible. An alternative would be to have a pool that is shallow enough to flush with the hose daily. Plovers spend their time wandering about the ground, picking through the litter for any insects or larvae. I have not seen them attempt to eat the lizards which can be found in their aviary, and I imagine these are too large for their fine beaks. Many of the plovers and lapwings can be very noisy at night, but this species will not rob you or your neighbors of any sleep. I only hear them at night if there is an intruder, such as a raccoon, near the aviary.

Diet: My plover diet is quite simple. I soak Kaytee Exact Softbill Pellets in warm water

until soft, then add some gamebird crumbles, a few mealworms and crickets, and perhaps a scoop of the chopped fruit and vegetable mix I use for softbills. The plovers seem to pick the corn from the softbill mix.

Breeding: The nest of these plovers is nothing more than a shallow scrape, sometimes with a few pebbles added, in a sandy or gravelly area. The 2–4 eggs are an olive-clay color, heavily mottled with brown. In their natural setting, they are nearly impossible to see. Incubation is 28 days. I have read in the literature that the incubation period for this species is 24 days, but this is not the case, at least in my experience. Unfortunately, I learned this the hard way, by opening an egg that had been incubated for 27 days, thinking it was overdue, only to find a chick that was ready to hatch. Of course, it was the only fertile egg in a clutch of four. The parents share incubation and defense of the nest. If approached too closely, they will immediately fly at the intruder's head and face. One soon learns why they are called "spur-winged"; they carry a tiny dagger in the bend of their wing! Other birds are kept a distance by the non-incubating adult, which lowers its head and charges the trespasser.

Newly hatched chicks are able to run around almost immediately. They are a downy buff color with black streaks over most of their body. They learn to eat quickly and soon are following the parents around the enclosure. If there is a pond in the aviary, it is a good idea to drain it at this time, as I have had chicks a few days old fall in and drown. A shallow dish of water can be provided for drinking. I usually add black or tubifex worms, which are available in most aquarium stores as fish food, to this shallow bowl. The chicks are soon drinking and feeding there. They will eat the same diet as the adults, however the mealworms must be very small at first. Some finely chopped, hardboiled egg will be eaten as well during this time. They can be separated from the parents at 8 weeks of age, or can remain until next breeding season, at which time they will be treated by their parents as just another intruder. I have left a first brood in the aviary when the parents have double clutched, and they have been fine throughout the rearing of the second brood.

Ring Size: 6 mm for crowned, blacksmith and spur-winged. 3 mm for three-banded and shore plover.

Species requiring similar management:

Plovers
Lapwings
Sandpipers
Stilts
Greenshanks
Ruffs

References:

O'Connor, S. 1997. Incubation & hand rearing protocols for New Zealand shore plover. New Zealand Department of Conservation.

Urban, E., C.H. Fry & S. Keith. 1986. *The Birds of Africa*, Vol. II