

Husbandry Manual
for
Common Name: Painted Finch
Scientific Name: *Emblema pictum*



(Aves: Estrildidae Bonaparte, 1850)

Author: Mark Spain

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Lecturers: Graeme Phipps, Jackie Salkeld, Brad Walker.

Disclaimer

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OH&S Warnings.

INDICATE ANY OH&S ISSUES, RISKS, HAZARDS AND HOW TO MINIMISE THESE.

There is small chance of receiving injuries from these birds and you are more likely to receive scratches and bumps from the aviary furnishings if trying to catch them with a net. These birds are very adroit at flying just above the ground and disappearing into brush or grass Tussocks or behind stumps and logs. If possible use a finch trap in large enclosure.

Always wash your hands after handling birds or cleaning aviaries.

Wear disposable gloves, particularly when handling dead birds.

Clean regularly. Do not allow dust and debris to build up. Use a face mask and gloves in dusty conditions.

Control pests such as rodents, mites, ticks and lice in aviaries.

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1. Introduction

History in captivity.

The Painted Finch was taken to Italy in 1905 and Germany and England in 1869. Wilford was the first breeder in England (1910). Today it is fairly well established and bred in Australia and overseas. (Immelmann 65). English bird keeper, P.M. Soderberg, stated in the mid 1900s that, on the whole, the Painted Finch was an unsatisfactory breeder in England. He pointed out that some bird keepers transferred the eggs of their Painted Finches to Bengalese finches (*Lonchura domestica*) for improved results (McNaughton, M. 2002) Although it could be bred successfully, once the right conditions were supplied, the Painted Finch was not common in aviculture due to the low numbers of wild stock able to be obtained. "Legal trapping ceased in 1986. Though also relatively valuable, few Painted Finches were captured because of their sparse distribution and concentration in habitats (rocky areas with Spinifex) and areas (particularly the drier Southern Kimberly) less frequented by other finches and consequently the trappers." Between 1974 to 1986, only 81 of 282,567 finches reported sold by licensed trappers were Painteds. (Franklin, *Burbidge and Dostine* 1999)

Value as a tool for education, conservation and research.

These confiding little birds are very active and are very obvious in a suitably sized enclosure as they forage at ground level. They prefer to spend a high portion of the time out in the open sun and are compatible with other bird species and as such are ideal for public display.

Status. State: N.S.W. - Painted Finches do not require a license to keep privately but are still protected and are not allowed to be trapped in the wild. <http://www.environment.nsw.gov.au/wildlifelicences/KeepingNativeAnimals.htm>

ASMP Passerine TAG; No Regional Program; Management Level 3

2009 IUCN Red List Category (as evaluated by Birdlife International - the official Red List Authority for birds for IUCN): **Least Concern** (See Appendix 4)

2. Taxonomy

2.1. Nomenclature and systematics

Class : Aves
Order : Passeriformes
Family : Estrildidae
Genus Species : *Emblema pictum*

Christidis and Boles (1994), Sibley and Monroe (1990, 1993)

BirdLife International (2009) Species factsheet: *Emblema pictum*. <http://www.birdlife.org> on 13/9/2009

Wikipedia contributors, 'Estrildid finch', *Wikipedia, The Free Encyclopedia*, 2 September 2009, 08:24UTC, <http://en.wikipedia.org/w/index.php?title=Estrildid_finch&oldid=311433742> [accessed 27 September 2009]

Emblema – From Latin meaning mosaic or inlaid work –this refers to the red and white spotted and mottled underparts of this finch (*Handbook of Australian, New Zealand and Antarctic Birds Volume 7.page 1243*)

Pictus – from Latin *pictus*, painted (from *pingere*, to paint) from (*Handbook of Australian, New Zealand and Antarctic Birds Volume 7.page 1243*)

2.2. **Subspecies** - None recognized

2.3. **Recent Synonyms** - *Emblema picta* (Gould 1842). Formally placed in Family Fringillidae.

2.4. **Other Common Names** - Painted Firetail, Emblema

3 Natural History

The first – known specimen was obtained on Depuch Island, off the North Western coast of Western Australia, in 1840 by Royal Navy Assistant Surgeon Benjamin Bynoe. He passed it onto to John Gould who described it in his *Birds of Australia* giving it the scientific name *Emblema picta*.

3.1 Diagnostic features.

The main feature that distinguishes this bird from other grass finches is its longer tapered bill.



Painted Finch *Emblema pictum*



Red-eared Firetail (*Stagonopleura oculata*)



Red-browed finch - *Neochmia temporalis*
(previously *Aegintha temporalis*)



Diamond Firetail
Stagonopleura guttata



Beautiful Firetail
Stagonopleura bella

The five species of the commonly grouped Firetail Finches formally grouped under the genus *Emblema*. (Photos <http://www.flickr.com/search/?q=firetail+finch>)

Measurements (Morphometrics).

Weight - Approximately 12 gm

Length - 100 to 120 mm

Sexual dimorphism - The birds are sexually dimorphic. The cock bird has far greater concentrations of red on the throat and chest area, often extending from throat to vent, but more often concentrated on the throat and chest. The hen tends to have less concentration on the throat and chest.

Males

The face, throat, centre of the belly and rump are red, with a great deal of variation between individuals in both the intensity of the red and the area it covers. In some males the red of the throat region extends down to, and joins, the red region of the belly. The chest and under parts are black with white spots extending down the flanks. The crown, nape, back, tail and wings are earth brown. The upper mandible is black tending to red at the tip. The lower mandible is red tending to pearl coloured at the base. The feet are flesh coloured.

Females

Similar to the male, however the belly has only a small area containing red feathers and the chest and throat region is more heavily spotted with white. Individual hens vary in the amount of red on the face, with some only having a few feathers making a line above the eyes while others have a red mask covering each eye.

Immature

Young birds are duller versions of the female, with a great deal of variation between individuals. Some birds fledge with more of the white spotting on the chest and belly than others, while others exhibit a darker chest and belly region with almost no white spotting. Some individuals fledge with several red feathers on the belly while others will have none. All young do have black beaks, a dull red rump and dull brown head, back and wings. Sexing young birds is difficult. The appearance of white spots under the beak may indicate a hen bird. The appearance of red feathers above the eyes well before the bird has attained adult plumage is most likely an indication of a cock bird. Young males begin to practice their courtship song at around 7 weeks of age well before they have attained adult plumage. Adult plumage is attained at about 12 weeks.

3.2 Distribution and Habitat.

The painted finch is distributed throughout the dry interior of the Australian continent in areas that have permanent deep waterholes from Derby in Western Australia across to the Gulf of Carpentaria, into far western Queensland and northern South Australia.

Usually associated with Spinifex (*Trodia spp.*), either in Spinifex grasslands or where Spinifex is the dominant understorey or ground cover species (Immelmann 1963)

The painted finch is locally common in northern and western parts of its range but is somewhat more erratic in the southern part of its range. (Rowland 1996). Temperature extremes in these areas can vary from below freezing at night to high 45 degrees Celsius during the day. Outside of the breeding season no roosting nest is used and even during the breeding season, only the female stays inside the nest at night, while the male roosts near the ground or even on the ground underneath a tussock (Immelmann 1965). The bird therefore has a great tolerance for extremes, but has a very low tolerance for damp moist conditions. They can be found in largely open and hilly spinifex country with very light stands of low scrubby bush, usually well interspersed, and usually established around permanent, or semi permanent waterholes. This reliance on permanent waterholes results in a patchy distribution even in the middle of its geographical range. This sedentary behavior contrasts distinctly with that of most dry- country species of Australian grass- finches (Immelmann 1965). Painted Finches occur in pairs or small groups of up to 20 birds. Pair- bond doesn't appear to be very close even during the breeding season with no social preening occurring.

These finches drink in the normal passerine manner of single sips, though quite quickly. They have not developed the specialised sucking action in a pigeon like manner like other arid dwelling birds such as the Zebra; Double – bar, Masked, Black –throated and Long – tailed Finches.

3.3 Distribution map



3.4 Longevity.

3.3.1. Wild. - Unknown

3.3.2. Captivity. - 7 to 8 years

3.3.3. Techniques to Determine the Age of Adults. - Adult plumage attained at about 12 weeks of age.

4. Housing Requirements

4.1 Exhibit Design.

The Painted Finch's natural habitat consists of semi-arid shrub savannahs, shrub steppes, semi-arid grasslands, and sclerophyll grasslands, as well as large areas virtually devoid of vegetation. Acacias tend to displace eucalyptus as it becomes more arid and the vegetation becomes more stunted. Hummock grassland is the largest vegetation group in areas of semi-arid to arid western and central Australia characterized by extreme temperatures. The grasslands are dominated by spinifex grass (*Triodia* spp.), that form round hummocks or mounds up to 1 m high. These are generally the principal over storey species of the grasslands, although sparse *Eucalyptus* (multi trunked /Mallee) or *Acacia* may occur. This means that the Painted Finch has evolved to make do with limited nesting sites usually at ground level or below 2 metres of height in often open sparsely vegetated areas. They have been bred in open sparse vegetation style parrot aviaries as long as they can find a nesting site that will allow construction of their nesting platform.

The aviary design should maximise sunlight reaching the floor with provision for sufficient open ground areas for sunbathing and foraging.

Mouse proof wire - usually 6.5mm x 6.5mm or smaller to be used to enclose entire aviary including under roof, sides and at least 30 cm below ground level to exclude rodents as due to their nesting close to ground level, Painted Finches are prone to interference from these.

Particular attention to excluding cold draughts as much as possible through wind breaks or positioning aviary will aid in keeping these birds healthy.

4.2 General principles.

Avoid over planting of aviary causing large areas of heavy shade and ensure floor of aviary kept as dry as possible. Cold damp floors are especially fatal to newly fledged young.

4.2.1 Holding Area Design.

Short term (24 hours with maximum of 32 within a 24 hour period) – "the length should be at least 3 times the animal's length and the breadth of the enclosure is at least one and a half times its length" (**Clause 20 . Pages 14 & 15, E.A.P.A. 2004**). A Finch show Cage (280mm X 260mm X 115mm) would be sufficient for this purpose though larger dimensions would be better.

Medium term (greater than 1 day and up to 90 days) – "must be at least 1/3 the prescribed exhibit floor (**Clause 20. Page 16, E.A.P.A. 2004**). There are no specific floor dimensions prescribed in the E.A.P.A. but reports of Painted Finches breeding regularly in a cage of 1000 long x 600mm wide x 600mm deep (*BirdCare.com.au*) would indicate suitable accommodation medium term.

4.3 Spatial Requirements.

An aviary that is large enough to allow direct sunlight on to its floor is important for these ground frequenting birds. For a single pair, an aviary of 1.2m wide X 3.0m deep X 1.8m high is quite adequate. Rodent proofing of enclosure is a must as these birds often nest low to the ground and are prone to disturbance by rodents.

4.4. Position of Enclosures.

This sun loving bird benefits from a North facing aviary and with part of the aviary open to the East for that early morning sun. Protection from cold draughts is a must if this bird is to survive during the winter, especially in the Southern parts of Australia, orient away from prevailing winds.

4.5. Weather Protection.

These are hardy finches, resistant to the effects of cold temperature but extremely vulnerable to wet weather conditions. There must be a dry sheltered area where the birds can retire to avoid damp conditions. The aviary floor needs to be well drained and dry. An aviary that maximises the amount of sun entering, especially the floor areas, but minimises cold draughts is ideal so take into account local conditions of prevailing winter winds.

4.6. Heating Requirements.

The main requirement of these birds is protection from cold draughts and damp conditions as they regularly experience below freezing temperature in their native habitat.

4.7 Substrate.

If a concrete floor is used it should be raised above the surrounding ground level and should have a layer of washed sand or crusher grit. This improves drainage, avoids damp conditions, allows for easier removal of droppings and provides a source of grit.

4.8 Nest Boxes or Bedding Material

Painted Finches will utilize artificial nests as well as building a natural nest. Half open wooden nest boxes, large coffee or Milo tins placed on their side, wire and cane baskets, logs on the ground and tied to aviary walls and roof, branches of brush and on top of anything they can construct a platform of coarse material. Individual pairs will often continually choose nesting sites at the same height (at or near ground level or as high as they can get in the aviary) or only use a particular type of nesting site (e.g. horizontal Milo tins).

4.9 Enclosure Furnishings.

Dead branches, rocks and burnt stumps should be included to provide open perching positions and a source of charcoal for their nests. Bare/open areas of ground should be available as they prefer to spend lots of time feeding and fossicking there so sand/grit or something well draining should be provided. Painted finches tend to use a variety of coarse objects to create a dense platform prior to working with grass to construct the upper area of their dome shaped nest. In the wild, Painted Finches often nest in Spinifex grass. It is hypothesized that a dense platform to the nest is created to ensure the sharp needles of spinifex grass that grow rapidly after rain, do not pierce the eggs or young. (Avicultural Society of Australia - David Pace 2006)

Nesting requirements

The Painted Finch will nest usually less than 1.5 metres in height in natural low shrubs, tussocks, logs on the ground or dried bundled branches such as tea tree. Some pairs though will nest as high as possible in an aviary. Favoured items for the platform include bark, charcoal, sticks, wood chip clods of dirt, and bits of termite eaten wood. Both sexes are involved in collecting material; however it is the male that seems to do most of this gathering while the female remains in the nest and positions each item deposited by her mate. Above the platform, longer pieces of grass and anything available is used including baling twine, string, strips of bark, wire and pliable twigs for the nest. The nesting chamber consists of finer grasses, feathers, coconut fibre and softer materials. The nest construction can take up to 7 days or as little as 2 days, with the final result being a dome shaped nest with a small opening and no entrance tunnel. Painted finches will often start building two nests simultaneously; however one is abandoned within a day.

5. General Husbandry

5.1. Hygiene and Cleaning.

If in an Exhibited Aviary a weekly raking of the floor areas, (apart from designated compost heap / forage areas if present) to remove seed husks and droppings. Replacement of top 20 mm of sand / crusher grit a minimum of every 4 months (dependent on aviary population and amount being removed in the weekly raking, it may be more frequent). Yearly replacement of substrata with clean sand / crusher grit and cleaning of solid walls with detergent / antiseptic such as Multiclen (active ingredient - Chlorhexidine Digluconate 10mg/ml). This may entail removal of birds for a few hours if possible. This can be a good time for physical examinations and sorting out what birds you wish to keep or get rid of. In the Free Flight Aviary, daily cleaning of Fruit and Nectar Trays and weekly raking of granite path (more often if need be) and empty Seed Hopper trays 3 times a week. Bench seats and signs need to be scrubbed down weekly to remove droppings and wooden ramp and elevated walkway needs to be swept weekly.

Changing of nest material, soil or branches.

In an Exhibited Aviary yearly replacement of dried brush and branches and cleaning of artificial nest containers. Pairs often reuse the same nesting site but the soiled inner nesting chamber may be removed for hygiene as they will sometimes begin constructing another nest while the young are still being fed.

Cleaning of nest boxes.

With artificial nests such as Coffee or Milo tins, removal and washing in boiling water or just replacing them with new ones (Kids like that idea in regards to the Milo). Remove wooden nesting boxes, scrub out and allow to air in the sun and then spray a bird lice and mite spray

Chemical agents which can or should not be used e.g. bleach.

Bleach should not be used as the fumes are toxic to birds and it reacts with metals. It is preferable to use something safer like Multiclens or F10.

5.2. Record Keeping.

No license required in New South Wales for private keeping of these birds.

Below is the clause relating to record keeping for Exhibited Animal Protection Act 1995 (amended 15th March 2004) pages 20 and 21.

Clause 31

1) Establishments must keep records of all animals on an individual basis or group in a form that can be quickly and easily examined, analysed and compared with those kept by other establishments because of the potential value for the development of improved management practices.

2) Animal record books issued by NSW Agriculture must be used to keep up-to-date records for each species and the original completed pages provided to the Director-General of NSW Agriculture each year in accordance with the prescribed process for renewing exhibitor authorities. The Director-General may, at the request of the holder of an authority, exempt the holder from this requirement.

Note:

The Exhibited Animals Protection Regulations stipulate additional requirements in relation to keeping and submitting the animal record books.

3) All documents and other information pertaining to each animal received from a previous location must be kept safely. Copies of all records relevant to each animal received must accompany animals moving to new locations.

Note:

Exhibitors are encouraged to maintain records that include the following information for each individual or group:

- Species (common and scientific name).
- Given name of animal and its sex.
- Date of birth.
- Name of breeder, place of birth, sire and dam (if known).
- Previous ownerships - names and dates.
- Breeding history - mating dates, mating partners, number and sex of any offspring and the fate of those offspring.
- Medical History (including diagnoses of diseases, medical treatments, surgical procedures, vaccinations). Dates are essential.
- Any noteworthy incidents involving this animal.
- Identification - e.g. leg band, ear tag, microchip, tattoo number, distinguishing marks or appropriate photograph.
- Dietary preferences

The amount and detail of records needing to be kept will also depend on the reason for keeping these birds. If a breeding program is being undertaken then more detailed records and observations are needed than if the birds are only being only exhibited and any breeding is secondary.

5.3. Methods of Identification.

Band size No 3 Australian Bird Banding Scheme

Legs - Coloured Plastic open band / split ring - Finch size (2.5 mm inner diameter).

5.4 Routine Data Collection.

Not applicable

6. Feeding

6.1 Wild Diet

Painted Finches, *Emblema pictum* in the wild mostly feed on the bare ground between the tussocks of Spinifex grass, picking up these and other small grass seeds from the sandy soil. They have been observed feeding on the following native and introduced grasses; *Poa annua* (winter grass), *Danthonia caespitosa* (ringed Wallaby Grass), *Amphibromus neesi* (Swamp Wallaby Grass), *Echinochloa crus-galli* (Barnyard Grass), *Chloris truncta* (Windmill Grass), *Digitaria brownie* (Cotton Panic Grass), *Cenchrus ciliaris* (Buffel Grass) and *Triodia spp* (Spinifex), sometimes in the company of Zebra Finches (Zann 1996). During breeding (after a period of rain and increase availability of seeding grasses) the Painted Finches will take insects, usually termites, which also become available.

6.2. Captive Diet.

The Painted Finch requires a good quality finch mix, seeding grasses and some fruits (e.g. grated apple) and green leafy vegetables. When breeding the Painted Finch has a bigger preference for seeding grasses and will eat a wide variety to feed their young. Main grasses that can be fed include; Veldt Grass (*Ehrharta longiflora*), Winter Grass (*Poa annua*), Rye-grass, (*Lolium perenne*) Perennial veldt grass or Panic grass, (*Ehrharta erecta*), Wild Canary grass, (*Phalaris spp.*) Barnyard grass or Water grass (*Echinochloa crus-galli*), Guinea grass, (*Panicum maximum*) Pampas grass (*Cortaderia sp*), Chickweed (*Stellaria media*), Hairy Panic (*Panicum effusum*), Foxtail Millet (*Setaria italica*) and Milk Thistle (*Sonchus oleraceus*). Other seeding grasses that can be fed include many of the native grass species such as those from the Tussock Grasses genus *Poa*, the Wallaby grasses genus *Danthonia*, the Spear Grasses genus *Stipa* and Kangaroo Grass (*Themeda*). Based on casual observations, it seems the Painted Finches have a preference for the smaller seeds, in particular Red and Yellow Panicum. If picking seeding grasses make sure they have not been sprayed with chemicals and if in doubt don't take them. Several Finch Breeders have said that grasses sprayed with Dog urine have been blamed for bird deaths (Norm Day 1980). Seeding grasses can be grown in off exhibit areas by spreading seed from the finch mix onto fallow ground or into pots and grown on for a ready supply, if you can keep the sparrows and other birds away. Sprouted or soaked seed should be made available. Sprouted seed is bird seed that is soaked for 12 hours then washed thoroughly, strained and left for a second period of 12 hours. The seed is then washed and strained once again. This is repeated 12 hours later after which the seed, which has now just begun to sprout, is placed in the lower section of the refrigerator. Live food is beneficial during the year and can be essential during the breeding season. Small mealworms, small crickets, ant pupae, termites, aphids, small spiders and even earthworms should be offered, though some birds will only raise their young only on seeding grasses and show little interest in live food. There is a lot of individual preference, but as in the case of getting birds to take to new food such as egg and biscuit or "cake" it should be made available as they may start as they see other "experienced" birds feeding. The Painted Finches in the Free Flight Aviary will help themselves to the Passwell Complete Lorikeet Dry Mix in the feed dishes set for Lorikeets.

Avigrain Birdseed mixes.

Avigrain finch - Panicum, Panorama, Japanese Millet, Canary seed, White French Millet, Red Panicum and Canola (Used at Wagga Wagga Botanics Zoo).

Avigrain Finch Blue - Equal Parts, Panicum, White French Millet, Canary seed, Red Panicum, Japanese Millet. An alternative to Avigrain finch. No black oil seeds. Panicum not Panorama used

A good quality Finch Mix is satisfactory if you don't want to buy the seed separately and custom mix it. The lower quality finch mixes tend to have a high proportion of wheat, sorghum and rape seed which is left uneaten.

Alternative diets used by other institutions.

Example of a Dry Seed Mix used at "Clifton" Finch Aviaries

20% Plain Canary	30% Red Pannicum
15% White Millet	10% Panorama Millet
10% Japanese Millet	15% Yellow Pannicum and/or Siberian Millet

Other commercial Finch Mixes - Premium Finch Mix by *Birds R Us* - Contains Red Panicum, French White Millet, Ordinary Panicum, Canary, Panorama & Japanese Millet.

6.3. Supplements.

Make available medicated shell grit, cuttlefish bone, dry calcium mix, and baked eggshells, fine river sand and semi-powdered charcoal. Our Painted Finches spend lots of time sifting through the granite and crusher grit path that winds through the Free Flight Aviary. A vitamin and mineral supplement sprinkled on sprouted and soaked seed or a water-soluble vitamin and vitamin B complexes can be used at the onset of the breeding season.

Supplementary protein can be provided by using a commercial insectivore mix, Dry Lorikeet Mixes or one of the Egg & Biscuit Mixes. Examples of other supplements include: Passwell Finch Soft Food Mix and Vetafarm Finch and Budgie Crumbles, Vetafarm Tracemin Soluble (trace mineral supplement), Vetafarm Soluvet (vitamin supplement), Vetafarm Breeding Aid (Essential fatty acid supplement) and Vetafarm Calcivet (calcium supplement).

6.4. Presentation of Food.

Placed in bowls/troughs or scattered around exhibit.

Seed should be placed in Rodent proof / weather proof hoppers or dishes lower to the ground rather than higher. More than one feeding station should be available to prevent any bully if housed with more aggressive species.

Behavioural enrichment methods.

By scattering seed onto the ground and on logs and rocks, turning over mulch / soil, supplying open dry sandy areas between thick clumps of vegetation and Tussocky Grasses the Painted Finch will be able to forage and require little else in the way of behavioral enrichment.

7. Handling and Transport

7.1 Timing of Capture and Handling.

Early morning and early evening are the best times for capture when it is cooler and when birds are actively feeding and foraging (before and after opening hours also avoids interference from the Public). Avoid the heat in the middle of the day during Summer months.

7.2 Catching Bags.

Size and fabrics used.

A standard butterfly net, preferably with a padded rim to prevent injuries or a finer bird catching net should be used. In the Free Flight Aviary or a very large enclosure an automatic Finch trap baited with seed should be used to lessen stress on the birds (and the Keeper)

7.3 Capture and Restraint Techniques.

Use of catching nets



An automatic Finch Trap ideally should be placed in an area frequently used for feeding and foraging such as below a feeding platform. Be prepared to catch a few non target birds (especially if you have Zebra Finches) before getting your target birds. Removing other sources of seed the night before may also encourage them to enter the trap. If it is a small Aviary situation then they can be caught with a standard butterfly net, preferably with a padded rim to prevent injuries, and placed in a well ventilated temporary carry cage.

Chemical restraint – Not Applicable

Precautions that need to be taken.

There is small chance of receiving injuries from these birds and you are more likely to receive scratches and bumps from the aviary furnishings if trying to catch them with a net. Be careful not to injure the birds or cause them to overheat.

7.4 Weighing and Examination.

Techniques to restrain while examining.

Pressure must not be exerted on the sternum. Birds must be able to move sternum to breathe freely

Cupping



This method involves the whole animal being enclosed in one or two hands. This technique is not suitable for species that may bite, sting or scratch hands. Suitable for most small birds, amphibians, small to medium lizards, small bats and small rodents

Example : *Finch cupped in hands.* (Photo by V. Richter/DEC)

Ringers hold

This is generally a one handed bird restraint method which involves the animal being caged in the fingers with the head protruding between the thumb and index finger or between the index finger and middle finger. The non-dominant hand is usually used to hold the animal. Suitable for small birds and can also be used on small rodents and mammals.



Example : *Little Lorikeet held in one hand using the ringer's hold.*

(Photo by V. Richter/DEC)



The ringer's hold for handling small birds for inspection.

(Photo by V. Richter/DEC)

Note: Most manipulations of the wing should be performed using the ringer's hold, by holding the humerus, which is closer to the body near the shoulder joint. In this image, the ringer is holding the base of the primary feather to assess moult of the primary wing feathers by extending the wing.

Bird handling & Ringing techniques (<ftp://ftp.fao.org/docrep/fao/010/a1521e/a1521e04.pdf>)

Reverse Ringers Hold

A one handed bird restraint method in which the bird is grasped with its back and closed wings against the palm of the hand, with the head facing downward towards the handlers wrist. Suitable for small birds which do not have sharp beaks as the head is not properly restrained.

7.5 Release.

The birds should be released in the early morning to allow them the time to settle down and locate food, water and shelter. It also allows time for the birds to be observed during the day for any problems such as bullying or injuries becoming apparent after capture and restraint.

The bird should be released facing an open area away from obstacles as they will fly off quickly sometimes even bolting just above ground level or taking off almost vertically.

7.6 Transport Requirements.

An Import or Export license does not need to be obtained from National Parks and Wildlife before transporting Painted Finches interstate as they are exempt for private breeders.

7.6.1 Box Design.

Painted Finches should be transported in the standard carry boxes that should be well ventilated but darkened to reduce stress. The mesh used at the front of the cage is usually finer (often Fly screen Mesh is used) than that used for Budgies. The finer mesh prevents heads, beaks and legs protruding out through larger size mesh / wire and being damaged as well as helps darken the box.

Transport cages should be spacious enough for the birds to move around but excessive space may predispose birds to injury and should be avoided. Sometimes the inside roof of the box can be lined with padding/foam. The boxes should be made from wood. If made from metal they should be lined with padding such as foam.

Code of practice for the housing of caged birds Bureau of Animal Welfare, Attwood October, 2001

AG0978

Issued by the Minister for Agriculture and Resources Prevention of Cruelty to Animals Act 1986

Published in the Victorian Government Gazette 6 May 1999.

Table 1. Short period carry cage dimensions

Cage	Size of bird (approximate length)	Height (mm)	Length (mm)		Minimum width (mm)
			minimum	maximum	
1	100mm (10cm) Cage 1 (up to four birds only) For example, for zebra, Cuban, double bar, orange breasted waxbill finches, fife canaries	150	150	200	135

Table 2. Cage dimensions for bulk consignment

Cage	Size of bird (approximate length)	Height (mm)	Length (mm)		Minimum width (mm)
			minimum	maximum	
6	100mm (10cm) Max no of birds - 40 For example, for zebra, Cuban, double bar, orange breasted waxbill finches, fife canaries	150	600	1000	300



Aluminium metal twin cage 330mm x 170mm x 135mm.
Lined with foam.



Plywood 350mm x 190mm x 180mm

7.6.2 Furnishings. Perches are optional

7.6.3 Water and Food.

Dry seed should be made available in a spill proof container as feeding is a natural reaction to stress. Enough seed and water should be provided to last the length of the transport, taking into account number of birds, length of journey, temperature (more water needed in hotter conditions) and how often birds are monitored.

Techniques for keeping it from spilling.

Water should be available in a small container filled with cotton wool. This ensures that water does not splash out and wet the floor of the cage, creating damp conditions that could be lethal. Amprolmix-Plus, at a dose of 5ml per litre of water, is beneficial when transporting birds as it helps them cope with the stress involved (Stossel '93).

7.6.4 Animals per Box. As per above table

7.6.5 Timing of Transportation.

Preferably transport in the cooler months to avoid overheating in enclosed transport situations during Summer. If the birds have to be transported during the warmer months then try to schedule their transport to avoid the heat of midday and early afternoon e.g. overnight, early morning or evening

7.6.6 Release from the Box.

Release the birds in the early morning to allow them the time to settle down and locate food, water and shelter even if it means holding them overnight in a portable cage.

8. Health Requirements

Observations are generally undertaken during cleaning and feeding each morning and include:

Check for evidence of

Unusual droppings e.g. - extremely runny and or red, black, yellow or green in colour

Wet or dirty vents

Progressive weight loss

Convulsion and tremors

Conjunctivitis and sinusitis and/or sneezing

Change in behaviour – unusually quiet/ timid or excessively noisy or agitated (could indicate the presence of a bird of prey or snake or bullying)

Excessive preening of feathers or scratching (lice or mites)

Difficulty breathing (not gasping or gaping)

Check that

Plumage in good condition no missing or displaced/ragged looking feathers

Birds active –not hunched/fluffed up on ground or sitting by itself

Birds flying and perching normally

8.2 Detailed Physical Examination.

Details of key things that are looked for to gauge the health of this species.

Check along breastbone for loss of muscle tone / mass (a good indication of weight loss / light condition without weighing)

Check for external parasites such as feather lice (usually seen attached to the underside of feathers, along the vanes) and mites

Check for abnormalities of wings and legs

Check for entanglement of feet/legs with bits nylon and cotton thread – these can cut off the circulation and result in the loss of a limb very quickly (aquarium filter wool, baling twine and sewing cotton thread are some of the worst offenders for this)

Check condition of the skin under the feathers

Faecal cultures and smears for bacteria

Faecal examination, direct and flotation for internal parasites –worms and protozoa

8.3 Routine Treatments.

Worming every three months by drenching via drinking water following dosage rates and the recommended period stringently and then a follow-up drenching using a different wormer two weeks after the first to kill off any parasites that have hatched. Rotation of different drenches is used to prevent resistance build-up. Check that you are using a different active ingredient not just changing brand names.

Coccidiosis treatment following any period of wet weather Baycox at 3ml/litre for 2 days.

Multiclens added at a rate of 1 ml. per 2 litres of drinking water daily

Herbal Treatments

Some Breeders use Apple cider vinegar at 5ml/litre regularly during extended periods of wet weather and high humidity. The aim with this is to acidify the birds' gut which purportedly enhances their natural resistance to a variety of possible bacterial and fungal infections when bacterial contamination opportunities are maximised.

Finch health - Prevention is better than Cure –Graham Bull

8.4 **Known Health Problems.**

General Finch Health Problems

The Painted Finch is a hardy bird but its preference for spending large amounts of time on the ground makes it prone to picking up most of the general finch parasites and diseases especially in damp conditions if housed in the coastal and higher rainfall areas of Australia. At the end of the Husbandry Manual there will be a list of some medications used by breeders with the active ingredients and dosage rates (see Appendix 5). In all cases where there is some doubt contact your Vet.

Mites and Lice – Feed on skin, feathers and suck blood.

Signs – Plumage looks poor, scales on feet lifting, excessive preening and bird acting irritated. Often large enough to be seen in a physical examination.

Treatment – Use an insecticide such as *Aristopet Bird Mite & Lice Spray* or *Avian Insect Liquidator*.

Tapeworms - A ribbon-like flat worm that can be seen without the aid of a microscope. Causes problems with the absorption of food across the gut and, in large numbers, can obstruct the gut and cause death. The infested bird has trouble processing enough food to maintain itself during colder spells when extra energy is needed.

Signs - Finch sits there 'shivering' with drooping wings. Flat segments in droppings, swollen abdomen, weight loss.

Treatment- DRONCIT, WORMOUT GEL

Round Worms – Small hair or thread like worms living in the digestive system.

Signs – Weight loss (going light) and lethargic

Treatment – Usually containing Moxidectin - IVERMECTIN, LEVAMISOLE, PANACUR 100, WORMOUT GEL

Gizzard Worms - live under the lining of the gizzard and make it difficult for infected birds to grind up their food.

Signs - Whole seed in the droppings. Birds affected by these often spend lengthy periods eating soft foods, cake, soaked seed or live food - any 'soft' feed that doesn't require breaking down or dehusking. Infestations of this magnitude often cause the birds to die of starvation as they are unable to breakdown enough food to survive.

Treatment – IVERMECTIN, LEVAMISOLE, PANACUR 100, WORMOUT GEL

Coccidia (*Eimeria* spp and *Isospora* spp in finches) - Causes a disease called Coccidiosis and is a small protozoal (single-celled organism) parasite that burrows into the birds intestine causing enteritis or an inflammation of the intestine. It is commonest in younger birds or in any birds kept in crowded and unhygienic conditions overcrowding, hot humid conditions, wet cage floor, other concurrent disease, and birds under stress.

Signs - Birds may show signs of stress & weight loss, diarrhoea, lethargy, dehydration and may also show a dirty vent, a general fluffed, hunched appearance, desire to drink continually, greenish through to black droppings – as a result of blood in the faeces through rupturing of the bowel. Secondary E.Coli infections can occur. Can be confirmed by faecal examination, direct and flotation.

Treatment – COCCIVET (Vetafarm), TOLTRO (Agrotech Australia) and BAYCOX (Bayer).

Prevention

Quarantine of all new birds no matter how healthy they look. It's a mistake I made when I first started breeding finches and it cost me more than a few birds.

Observation- if they look suspect put them in a hospital cage. Especially during cold snaps and wet weather for these ground loving finches a day in a heated hospital cage (figure 1) will improve their chances of survival. Provide a warm and dry aviary environment - free-draining floor substrates, protective cladding to prevent cold draughts, position the aviary to best utilise the warmest most sunlit aspect for your location, not overplanting the aviary so that there is too much shade (they are from an open desert environment and will always be found in the sunniest part of the aviary preferably at ground level) and provide raised water vessels to prevent a regular wet patch when bathing occurs. Don't place perching, nesting and feeding areas where fouling of food and water can occur, and providing raised feeding stations so that most feeding activity occurs away from the aviary floor will help minimise infection possibilities though *Emblemas* prefer to pick through fallen seed on the ground first so place feeders where the floor is concrete, some readily clean surface or a large tray. Same applies to when feeding green seed heads don't throw them on damp soil – peg them up or place on a large tray on the ground to

decrease the chance of bacterial, fungal, or parasitic worm infestation.

Maintain a reasonable standard of hygiene in feeding your birds by regular cleaning of water and food bowls especially where moist or perishable food items are provided.

Don't overstock. This will reduce the incidence of food or water becoming fouled by droppings. The reduced incidence of aggression and direct competition between birds for food, water and nesting sites and materials results in significantly lower stress levels and they are far less likely to succumb to disease and parasites. Overcrowding results in disease and parasite outbreaks with birds becoming susceptible to secondary disease organisms. Drugs are no substitute for good husbandry

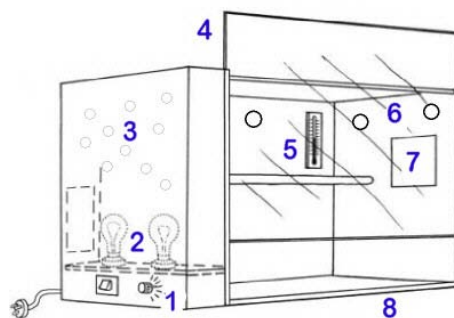
8.5 Quarantine Requirements.

"The Painted Firetail is particularly prone to excessive water loss when under stress (You will notice that its droppings are very watery) so an electrolyte replacer should be added to their water in order to offset the stress of moving if they are new acquisitions." (Pollard .M - <http://www.cliftonfinchaviaries.org/articles.html>)

- If you are picking up your birds ensure your carry box is clean (has been disinfected since last used)
- The quarantine cage/aviary situated away from other is ready and has been disinfected, including perches and seed/water containers. Seed and water in place. Check as to the birds existing diet as it may vary considerably from yours, therefore, it may be better to gradually introduce your own mix rather than offer the birds something they are not familiar with.
- The cage should have provision for a removable tray which is cleaned daily
- If the birds are going into a quarantine aviary they release in the early morning to allow them to familiarise themselves with the location of food and water, even if it means holding them over night in a small cage.
- If birds in quarantine exhibit signs of disease they should be placed in a hospital cage (figure 1), that should be warmed to around 25-30 Celsius, where they can be more closely monitored and the appropriate treatment administered or samples taken for analysis. If the birds come through their hospital ordeal, they should be placed in a quarantine cage and their quarantine period begins again. You should be looking at about 40 days in quarantine. If you know the birds are coming from a wet/humid area then a routine treatment for coccidia would seem advisable.
- Wash and disinfect food and water containers regularly (daily)
- Wash hands before and after working with cage/aviary.

FIGURE 1 BIRD HOSPITAL BOX By Heather Parsons

1. Dimmer switch for temperature adjustment.
2. Two globes in parallel in case one blows.
3. There is a wall between the bird compartment and the globes with air holes to allow warm air to pass through. This wall is fixed and birds often lean up against it for extra warmth.
4. Perspex to slide up for cleaning and extra airflow to drop temperature.
5. Thermometer to continuously monitor temperature. Must be a rise and fall type.
6. Air Holes – small plastic vents as in old cupboards.
7. Door to change food etc. or to take birds in & out.
8. It's a good idea to make a solid floor to remove for cleaning – made of thin metal.



© Drawing by Jeff Hardy .

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9. Behaviour

9.1 Habits.

Can be timid when first released into an aviary & may remain on the aviary floor for a period of time. Once settled they are inquisitive, confiding and very approachable. When turning over soil /spreading seeds or placing trays of greens or live food on ground in my aviary or the Free Flight Aviary at work they are the first birds to come down and even checking out the soil as I'm forking it over. This is a passage from a Finch Society Article that illustrates their confiding behaviour / nature. THE PAINTED FIRETAIL OR: MY, WHAT A POINTY BEAK YOU HAVE by Marcus Pollard *"This species is one of the most confiding finches that you could include in your collection as they will take very little notice of you and nest in all manner of ridiculous places. As many know I was lucky enough to visit their wild home in the Kimberley as part of the Save The Gouldian Fund work one September and now know where their trusting nature comes from. It was noticeable how cautious most finches were in approaching the water. When the Double Bars, Longtails and Gouldians came down to drink they were skittish and called to others of their species before descending in numbers. Also, they only drank from small puddles (more like footprint depressions really) and would not drink directly from the main water body. The Painteds? No such nervousness! You would simply become aware of being 'stared at' and then you would turn and see several sitting in a near-by tree watching you then down they would all come and start drinking, not from the puddles but from anywhere they damn well please ! When the other birds would nervously fly off the Painteds more often than not simply had a good look around, shrugged, and continued drinking – well, it looked that way at least!! "*

The bird also has a sort of semi hovering capability and can take off from the ground like a vertical takeoff jet; this would help in the capture of flying insects, and aids in its nest building activities. As well as allowing it to utilize hard to get at nesting sites that have no perching near the entrance hole.

In the wild their flight is fast and direct when flushed and is often slightly undulating over longer distances and often close to the ground, navigating over and between rocks and tussocks of spinifex. When foraging on the ground they hop with a bouncing gait over rocks and in and around Spinifex, using their long bill to probe crevices between rocks and into Spinifex. Give a low or loud *tiik* or *trut* to maintain contact between mates or within flocks. (HANZAB)

Activity – amount of time spent active and when.

Going by my own observations *Emblemas* are the first finches out searching for the first rays of sunshine coming into the enclosure and in the evening they will be crowded into the part of the enclosure that gets that last little bit of direct sunlight. It is only during the nesting season that the birds retire earlier in the evenings. Majority of foraging is during early mornings and evenings in the wild with the birds seeking shade from the heat of the middle of the day but in captivity in milder climates they are active continually even in what we would call extreme heat in the Wagga Summer with short periods of rest in between. During nesting both sexes involved in collecting material, however it is the male that seems to do most of this gathering while the female remains in the nest and positions each item deposited by her mate. The construction of the nest takes up to 7 days in the wild (I have seen one of my pairs construct a nest and the first egg laid within 2 days inside an old Milo tin – ample nesting material was available.), with building two nests simultaneously common before one is abandoned within a day.

Social behaviour.

Outside of the breeding season no roosting nest is used and even during the breeding season, only the female stays inside the nest at night, while the male roosts near the ground or even on the ground underneath a tussock (Immelmann 1965). There are no special social activities such as contact behaviour or social preening. They may breed in small colonies but there is only a loose connection between pairs. Pair- bond doesn't appear to be very close even during the breeding season with no pair preening.

Group size.

Painted Finches occur in pairs or small loose groups of up to 20 birds in the wild.

9.2 Reproductive Behaviour. Courtship displays used.

In the wild they always court on the ground but in captivity they will court on branches, stumps forks & logs.

Introductory display – male & female pick up twigs ,rootlets ,or even small stones & quickly drop them again male & female twist their tails towards each other.

Proper Courtship dance has been lost – the male just sings at the female in a vertical posture with stretched legs. He rapidly pivots his head with the feathers of head & belly raised out distinctly, thus enlarging the scarlet face mask & breast patch. The male may be some distance from the female & proceeds towards the female in jerky hops while singing. Displacement beak wiping may be present & will be performed slowly. If the female twists her tail towards the male & quivers it mating will take place. (Immelmann 1965).

The song may be sung as a solitary song by males with the beak pointed upward (at 45 to 60 degrees above the horizontal). Structurally it is described in the following manner “che che che-che-che-che werreeeee – ooooooeee” this song phrase may be repeated 2 or 3 times in each song bout (Morris -1954). *“The cock birds will begin calling around August down here and a friend likened their call to a demented metronome!”* (Marcus Pollard)

Time of year when these displays occur.

These birds will start courting & nesting after rain if there has been an extended period of dry, especially if there is increase in vegetation & live food availability. Young males, as they reach sexual maturity will start solitary singing as will adult males trying to attract mates.

9.3 Bathing.

Some access to shallow water should be available for bathing though I have rarely seen them bathing as frequently as other Australian Finch species.

9.4 Behavioural Problems.

No behavioural problems noted when kept suitable sized cages.

9.5 Behavioural Enrichment.

Techniques used to minimise behavioural problems.

By scattering seed onto the ground and on logs and rocks, turning over mulch / soil, supplying open dry sandy areas and thick plantings of vegetation the Painted Finch will be able to forage and require little else in the way of behavioral enrichment. These birds are very inquisitive & will be the first to inspect anything new or disturbed. These birds utilise their tapered bills for picking out fallen seeds from hard to get at places like between grass clumps and cracks in logs, stumps and between stones so placing seed in these situations will prolong their foraging time.

Methods used to increase the species time on display.

These sun loving birds spend large amounts of time on the ground and will tend to congregate in those areas receiving high sunlight levels. By providing (in view of the Public) dry open sunny patches of bare ground, rocks, stumps and branches where they can sunbath or forage & locating feeding / watering stations in these areas this will increase display time.

9.6 Introductions and Removals

Make sure of quarantine requirements.

Follow normal quarantine procedures

Aggression problems that may be associated with introductions.

Monitor new arrivals for reactions by enclosure inhabitants, normally no problems.

Are there precautions that need to be made when removing animals?

With the loose pair bond – removal of one partner for more than 2 weeks during breeding may end up having the remaining bird paired up by the time it is returned.

New *Emblemas* should be released into aviaries in the early morning to allow time to familiarize themselves their surroundings & locations of food & water. They can be timid when first released & will often remain on the aviary floor for a period of time, ensure that aviary floor is not damp.

9.7 Interspecific Compatibility.

It is not highly territorial except during breeding season within immediate vicinity of nest and mainly towards its own species. This bird is often recommended for mixed species collections.

Bird keepers at Taronga Zoo recorded problems associated with the keeping of Inland bearded dragons *Pogona vitticeps* in a mixed bird exhibit when two painted finches went missing without a trace. Meikle and Atchison recorded, "The lizards were seen to stalk the birds as they ate seed on the ground and were noted to run at the birds when they took flight.....it is cautioned that the mixture of Inland bearded dragons with small finches and larger bird species may result in predation of the birds. The shinglebacks, though less active, had no apparent effect on bird behaviour."- 1990. Meikle, W. & Atchison, N. *Predation of Australian birds by Inland Bearded Dragons in a mixed exhibit at Taronga Zoo. Thylacinus* 18 (3) 15. As reported in the article- *A prolific pair David Pace, Anglesea Avicultural Society of Australia.2006*. I wouldn't place lizards in with finches if only for possible disturbance to nesting /foraging and courtship of ground frequenting birds let alone predation of eggs and nestlings.

Can diseases be passed from other species to this species or vice versa?

They spend long periods on the ground and that puts them very much at risk of parasitic and protozoal problems. This may mean that other birds have a higher risk of catching soil borne diseases and parasites than they normally would. They can catch and or pass on most of the common finch diseases.

9.8 Intraspecific Compatibility

There are no specific problems with same sex groups.

10. Breeding

10.1 Mating System.

Painted Finches are monogamous with the pairs staying together during the breeding season. If one of the pair dies or is removed the other seems to pair up with the next available unattached bird quite easily. This may be a survival trait along with their quick response to breeding after infrequent rain in their harsh desert environment.

10.2 Ease of Breeding.

Easy to breed .Pair bond not close, pairs can be put together though allowing them to choose their own mates is preferable .Ready for breeding when attaining adult plumage.

After a period of dry weather they will start quickly breeding after rain, which in their desert environment, will lead to an increase in vegetation and food availability for their offspring. By increasing the amount of dried brush or increased plantings in an enclosure or moving them to a well planted enclosure may trigger them into breeding. Increased availability of live food, half ripe seeding grass heads and making nesting material available–twigs, small pieces of charcoal, bark, chip, stones (for building of platform at base of nest) and dried grasses & vine – like materials & feathers can trigger them into breeding.

Some of the Painted Finches released into the Free Flight Aviary at Wagga Wagga Botanic Zoo started constructing nests within 2 days.

10.3 Techniques Used to Control Breeding

To prevent breeding sexes should be separated into same sex groups. Removing eggs from nests will result in pairs just start laying again after a short period or rebuilding a nest elsewhere. With removing eggs the birds are still using up energy and the female using up its bodies' reserves of calcium plus you have a possible detrimental effect on further breeding in regards to physiological or behavioural problems. If unable to separate sexes then removal of coarse nesting materials that are required for the platform part of the nest may inhibit breeding as some pairs will not continue nest construction if these are not available. Culling should not be an option as you might as well sell or give away birds that are excess to demand instead of destroying healthy birds.

10.4 Occurrence of Hybrids

Red – browed Finch (*Neochmia temporalis*) male X Painted Finch (*Emblema picta*) female (cf. *Australian Aviculture*, November 1951) (Immelmann 1965)

10.5 Timing of Breeding.

Are they seasonal or continuous breeders. " *The life cycle of all Estrildidae is controlled by diet and not by daylight length. The Gouldian as an example breeds in the Australian winter when day length is at its shortest but food, following the wet season, is at its most abundant* " (Fidler.M - Gouldian Life Cycle Calender).

Painted Finches will start quickly breeding after rain and keep raising clutches in succession while adequate food for young is available. In the wild rain triggers a breeding response in these desert inhabiting birds.

In the cooler parts of Australia breeding tends to taper off during the colder months unless there has been an extended dry period before the onset of winter and an increase of rain. It is preferable not to have them breeding in the colder months to give them a rest and there is a higher mortality rate of young when fledging given their habit of staying on the floor. Egg binding may be a problem in winter as well. All the Painted Finches at the Wagga Botanic Gardens Zoo are held in the Free Flight Aviary which makes it hard to get an accurate count especially as the original plantings of grasses, bamboo and shrubs have grown to give areas of dense vegetation.

10.6 Age at First Breeding and Last Breeding.

Adult plumage is attained at around 12 weeks (young males will start practicing courtship song at 7 weeks of age) , while Pace has reported young birds commencing breeding as early as 18 weeks.

Best breeding years are estimated to be between 2nd - 5th years.

10.7 Ability to Breed Every Year.

If breeding triggers are provided Painted Finches will keep breeding while adequate food for young is available. Their offspring will start breeding at about 18 weeks of age.

10.8 Ability to Breed More Than Once Per Year.

If young are lost or removed for fostering or incubation.

I have found they can recommence breeding within a week of losing eggs or all young dying in the nest ,usually constructing another nest at another site.(if adequate food available)

Do they breed more often in captivity with increased food?

Pace reported that after releasing a new pair into his aviary - *"Now, some six months later, they have fledged young every 7 weeks and are incubating once again - what a prolific pair!"* (Pace .2006). The main reason for ejecting / abandoning young is if they do not get enough food that they are looking for such as live food or half ripe / seeding grasses.

10.9 Nesting/Hollow or other Requirements.

Size and shape of nesting areas

Painted Finches will utilize artificial nests as well as building a natural nest. Half open wooden nest boxes, large coffee or Milo tins placed on their side, wire and cane baskets, logs on the ground and tied to aviary walls and roof, branches of brush and on top of anything they can construct a platform of coarse material. Individual pairs will often continually choose nesting sites at the same height (at or near ground level or as high as they can get in the aviary) or only use a particular type of nesting site (horizontal Milo tins). One pair in the Free Flight Aviary kept trying to construct a platform on a wooden beam under the roof of the Information Board over 2 days, but the twigs kept falling down, before giving up and building on top of a fence post (I removed 2 large shovels of fallen nesting material from below the original site) .Another pair would always nest at ground level at the base of grass tussocks. Coarse nesting materials that are required for the platform part of the nest (bark, charcoal, sticks, clumps of dirt, wood chips and thick stems) must be available as some pairs will not continue nest construction if these are not available.



Platform part of Painted Finch nests in Free Flight Aviary – Wagga Botanic Gardens Zoo

Painted Finch nests in my home Aviary



This female nested in a hanging pot containing a Bromeliad with just a slight hollow for the nest – abandoned after 7 days



Nest in brush



Female in nest of hanging wire cylinder filled with straw



Nest constructed in wire cylinder



Female in nest in brush



Milo tin Nest.



Nest in Wire frame

10.10 Breeding Diet.

Changes prior to breeding

Increased availability of half - ripe seeds/ seeding grasses, live insects (mealworms, ant pupae, termites, aphids) and soaked / sprouted seed.

Diet changes while breeding.

Make available - soaked / sprouted seed, increased offering of half - ripe seeds/ seeding grasses, live insects (mealworms, ant pupae, termites, aphids) and greens. Before breeding make available calcium in the form of cuttlebone, sterilized eggshell, fine shell grit or as a supplement dusted onto soaked / sprouted seed to ensure no problems with egg laying.

Is more food eaten?

More live insects are taken (both provided and free living in the aviary that they catch on the wing, from foliage or the ground). More soaked / sprouted seed, half - ripe seeds/ seeding grasses and greens.

10.11 Gestation or Incubation Period.

Incubation is for approx 14 days. Only the female sits on the nest during the night while the male roosts on or near the ground, while both will share incubating duties during the day.

10.12 Litter Size or Clutch Size.

3 to 5 white eggs laid on consecutive nights that are rounder than other Australian Grass finch species eggs
No particular bias towards females or males in the sex ratio at birth

10.13 Age at Weaning/Fledging.

Fledge at approximately 21 days (Pace 99). Once the young leave the nest they will not return to it no matter how many times they are placed back in it and will remain on the ground for the first week. This may cause higher mortality rates in the cooler parts of Australia especially if they breed in the cooler months. *"This often means that they can freeze on frosty morning so we try to place clumps of nesting material in one corner of the shelter and drop all the youngsters into it and, usually, if they are up above the ground they will be fine. As the youngsters also form large clumps of individuals from different nests this also helps keep them warm"* (Pollard .M). This also underlines the need for keeping the aviary floor dry and draught free.

At what age are young independent and the female can re-breed?

Young are independent at approximately another 21 days after leaving the nest. The parents will often begin constructing another nest before this happens and often not long after they fledge if food plentiful.

Is there any difference in juvenile mortality if several young are raised together in a nursery.

Pollard reports that young from different nests will form clumps which will help keep them warm on the ground after leaving the nest.

Will other males or females attack the adults or young upon their return to the group.

Adults will not attack young of other pairs unless they venture too close to the entrance of their nest and even then it is fairly subdued.

10.14 Age at Removal from Parents.

The young are fully independent by 7 weeks of age and are fully coloured at 3 months of age. I have left all young with the adult birds and there has been no interference or detrimental effects.

11. Artificial Incubation and Rearing of Birds

No detailed information has been found in regards to the artificial Incubation of eggs of the Painted Finch. Information on finch species in general can be found on Roy Beckam's Web site. *Artificial incubation and Finch Eggs.* www.efinch.com/incubator.htm or the Finch info website <http://www.finchinfo.com/index.php> or, for the Gouldian Finch [Gouldian Finch Info http://www.gouldianfinch.info/breeding/index.htm](http://www.gouldianfinch.info/breeding/index.htm)

Information on Gouldian Finch *Erythrura gouldiae* used.

Double or triple clutching is not commonly practiced with finches generally though harder to breed species have been successfully fostered under the Bengalese Finch - *Lonchura striata domestica*. The Gouldian Finch *Erythrura gouldiae* is fostered regularly for the commercial aviculture trade in Japan. Hand rearing of finches is a

more delicate and time consuming job than with larger birds such as parrots due to their small size. Where possible fostering under the Bengalese Finch - *Lonchura striata domestica* is often used. However this involves having foster parents ready or willing to incubate eggs or feed young which leaves what to do with unforeseen abandoned babies or eggs. Eggs may be placed in an incubator to hatch out or temporarily until they can be placed under foster parents. An Incubator that has been recommended by Roy Beckom (www.efinch.com) as suitable and accurate enough for the small finch eggs is the Turn-X incubator (model TX-7) manufactured by Lyon Electric.

Artificial incubation should be carried out in a room that is sterile, free from insects and rodents, and temperature controlled or at least free from large temperature fluctuations and out of direct sunlight.

11.1 Incubator Type.



TURN-X, A COMPACT TABLE TOP INCUBATOR manufactured by Lyon Electric

Features :Humidity Control Fan Total Visibility Polycarbonate Dome - observe eggs, read Dry & Wet Bulb thermometers, humidity readings and all adjustments can be made without opening the incubator. Automatic turning grid 1 hour is standard but can be adjusted. Can be used for larger eggs – up to 9 goose sized eggs by using different turning rings - for turning finch eggs, get the universal turning ring (940-28). Image Roy Beckom(www.efinch.com).

Some things to watch out for or modify:

- Replace the screen in the bottom with a finer screen or better yet, the nylon screen used in embroidery if you find that the screen is damaging your smallest eggs or if you intend to let the chicks hatch in the incubator as some of the smaller chicks will fall through the 1/4" wire, and into the water
 - Make sure that the turning ring hits the egg on the lower half of the egg to keep the ring from rolling over the eggs and crushing them.
 - Use only distilled water to cut down on the lime deposits in your machine
 - Clean your incubator regularly to remove lime deposits and to avoid the build-up of bacteria
- See Appendix 2 for other Incubators

11.2 Incubation Temperatures and Humidity.

The smaller size of finch eggs makes them more susceptible to temperature fluctuations and the thinner shell also makes humidity and ventilation control more important. Set the temperature for incubating most finch eggs at 37.5 degrees C .The humidity should be kept fairly constant at 75 percent or 33.05 on the wet bulb. In the Turn-X incubator, set the water to fill the first 6 chambers in the bottom pan. (Humidity often needs to be adjusted to your particular location depending on the relative humidity and altitude). Humidity in the incubator can also be monitored by watching the air cell in the end of the egg. If the humidity is too low, the air cell will grow too large, too quickly. The reverse is also true.

11.3 Desired % Weight Loss.

An egg should lose about 15% of their initial weight during incubation. By candling of eggs, usually after 4 days, to check fertility and development inside the egg infertile ones can be discarded.

11.4 Hatching Temperature and Humidity.

No detailed information for Painted Finch but for the Gouldian Finch *Erythrura gouldiae* maintain temperature at 34.5 °C and increase humidity 10 to 15 % during the last 3 days

11.5 Normal Pip to Hatch Interval.

No detailed information for Painted Finch but in the Woodpecker Finch *Camarhynchus pallidus* internal pipping usually occurs a day before the chick fully emerges.(Good, H. Corry, E Fessl, B. & Deem, S. 2009)

The Gouldian Finch chick may take from a half hour to well over 24 hours to complete the hatching process.

(<http://www.gouldianfinch.info/breeding/eggs.htm>)

11.6 Brooder Types / Design.

Brinsea brooders (see Appendix) have been used for raising Woodpecker Finches at the Charles Darwin Foundation, Galápagos. Dependent on the numbers of chicks to be raised and to keep expense down an old still air incubator may be used as a brooder or one may be handmade as long as temperature can be accurate and constant.

11.7 Brooder Temperatures.

For the Gouldian Finch a hatched chick should be transferred to a brooder initially set at the same temperature and humidity as the incubator. The temperature should be decreased as per Table 1 depending on the chick's behaviour.

The humidity in the brooder needs to be maintained above 50%.after hatching

STAGE OF CHICK'S DEVELOPMENT	TEMPERATURE OF BROODER
Newly hatched	33.3 - 34.4 °C
Older, but still unfeathered	32.2 - 33.3 °C
Pin feathers present	29.4 - 32.2 °C
Fully feathered	23.9 - 26.7 °C
Weaned	Room temperature

11.8 Diet and Feeding Routine. No detailed information for Painted Finch though it was reported 8 hatchlings were handfed using Kaytee Exact handfeeding formula and small pipettes at 2-hour intervals throughout the day with overnight (6-7 hours) without food. They grew and feathered without incidence. (The Care and Breeding of the Painted Finch (*Emblema picta*) 1999 *Unique Beak* <http://uniquebeak.homestead.com/PaintedFinches.html> Information on Gouldian Finch *Erythrura gouldiae* used.

Use a good quality Hand Rearing Formula such as *Passwell Hand Rearing Formula* and follow instructions.

Temperature of food.

36.5 – 37.5 degrees Celsius or follow Formula instructions. If formula too hot it will burn chick's mouth or crop. If too cold the chick may not digest it (sour crop), may refuse to keep feeding and it may cause a drop in body temperature.

Methods used to feed.

Mix up formula according to directions especially in regard to consistency of mixture

Spooning: Newly hatched chicks are very small you may find it easier to spoon a little of the formula in to the mouth with a flat end toothpick and let the chick swallow it (you may need to tap side of beak if chick not begging with open mouth). Just be sure you get the food far enough in to the back of the mouth to trigger the swallow reflex. Sometimes you need to hold the toothpick in the mouth to keep the chick swallowing until the mouthful is all the way down. A mouthful for a chick is about the size of a single seed. Once the food has been swallowed, wait 20 seconds and get the next mouthful ready.

Crop Tube: As the chick grows you can upgrade to a crop tube. This makes feeding a lot easier and there is much less risk of aspiration if done properly. A crop tube is simply a flexible tube on the end of a syringe (1 cc for finches). Suck the warm formula up through the tube and in to the syringe, watch for air bubbles and try to avoid them. Put the tube down the chicks' throat over the top of the tongue and angle the tube within the mouth towards the chick's right side and gently guide the tube down the chick's oesophagus and into its crop. Squirt the food in gently and fill the crop then remove the tube. A syringe without the tubing or pipette can be used after 5 days if chick begging or feeding well and then formula is placed in mouth. The formula will also become progressively thicker as the chick ages.



Amount of food.

Do not over or under feed the baby. When it is full, the chick may stop begging or its crop will appear full. Feed it again each time the crop becomes nearly empty.

Age	Amount
1 to 2 days	Continue until crop full
3 to 5 days	Continue until crop full - up to about 0.5 cc
6 to 7 days	Continue until crop full - 0.5 cc to about 1 cc
8 to 15 days	Continue until crop full - up to about 1 cc.
18 to 21 days (fledging)	Continue until crop full - start to offer seed & soaked seed
22 to about 30 days - weaning	Continue until crop full - will start taking more seed & soaked seed ,start placing in fresh water & more solids

Frequency of feeds.

Continue feeding it regularly whenever the crop is emptied (usually every hour).

Substitute Pedialyte for water in formula for first day and if baby dehydrating

Age of Chick (days)	Feed Interval
1	Usually every hour (if crop empty). Also, four night feedings may be given to strengthen the baby.
2	The same procedure for a day 1 should be used here; however, Pedialyte should be exchanged for water. Also, reduce night feedings to 3 times per night.
3 - 5	About every hour and a half (if crop empty), and night feedings for day 5 should be reduced to 2 for that night.
5 till weaning	Feed when the crop becomes empty (every 2-3 hours), and reduce night feedings for days 6 & 7 to once per night. On day 8, cease night feedings.
18-21	fledging age supplement with offerings seed & soaked seed
21 till weaning	As they begin to refuse taking any more formula, Wean them onto more seed & soaked seed

11.9 Specific Requirements.

The chick needs to be kept in a suitable sized container lined with paper towel which acts as an artificial nest for the chick. The chick should fit 'snugly' into the nest to prevent legs splaying out to the sides. Replace bedding after feeding.

11.10 Pinioning Requirements.

Not applicable

11.11 Identification Methods.

Legs - Coloured Plastic open band / split ring - Finch size (2.5 mm inner diameter).

11.12 Hygiene.

Very high standards of hygiene must be kept with washing of hands before and after handling eggs or young. Hand-rearing facilities should include a sink to disinfect and rinse feeding equipment, a food preparation area including a fridge to store food and basic medicines, and a waste bin for the disposal of faecal matter. Eggs and young are susceptible to disease and the feeding of these very small chicks with liquid is naturally very messy. Ensure that spilt food is cleaned off the chick after feeding. Do not reuse unused formula – make up a fresh batch at each feed. It is extremely important that you sterilize the pipettes, syringes and formula cups before first use and after every feeding

11.13 Behavioural Considerations.

No detailed information on Painted Finch.

Woodpecker Finch Guidelines recommends "clutches should be hand-reared together, i.e. more than one chick kept in a nest. If only one chick successfully hatches from a clutch then multi-clutching, providing they are the same age, is advisable. Raising a chick by itself runs the risk of imprinting. The use of audio playback of adult

calls when hand-feeding may help to eliminate this if multi-clutching is not an option. " Placing adults in a cage near the young chick for periods of time (if not of a hygiene concern) might lessen also this.

11.14 Use of Foster Species.

English bird keeper, P.M.Soderberg , stated in the mid 1900s that, on the whole, the Painted Finch was an unsatisfactory breeder in England. He pointed out that some bird keepers transferred the eggs of their Painted Finches to Bengalese finches (*Lonchura domestica*) for improved results (McNaughton, M.2002 *Australian Parrots and Finches*)

Paul Ceiley (1999) from London reported in a National Finch & Soft bill Society article that he attempted to breed Painted Finches in cages 55 cm x 45cm x 30cm arranged in blocks of nine, 3 deep x 3 across. He used Bengalese to foster but found sometimes the Bengalese did not seem interested in feeding the chicks in the first few days and he hand fed them until they started feeding. In the first week the hatchlings are very quiet without any begging sounds which would be an advantage for ground nesting birds in their natural arid environment to avoid attracting ground predators. They also keep the head and body still so that the only thing that moves when begging is their tongue as opposed to most other finches that move their heads and non grass finches which also quiver their wings. Bengalese foster parents also range in their fostering abilities and not all are perfect parents just because they are Bengalese Finches.

Imprinting may become a problem if the young are not placed with their own kind soon enough and they start to imprint on their Foster Parents. This is especially true with finches that can become sexually mature at a young age. In order for a chick to imprint upon its own species, it should be exposed to adults of its species from the 15th to the 40th days of life. (Avoiding Problems with Fostering – <http://www.finchinfo.com/breeding/fostering.php>)

All newly weaned chicks should be placed in the same cage with the adults of their species or have some of the same adult species in the rearing cage. Bengalese Finches are well known for their fostering abilities and have been known to go and feed other species young when the parents leave the nest. I had a pair of male Bengalese sit on and then try to feed newly hatched Turquoise Parrots *Neophema pulchella* inside their nesting log while the female Turquoise Parrot was sitting. Another example reported on www.avianweb.com from. "*I have a buttonquail hen sitting on at least 10 eggs in the bottom of a terracotta pot laying on its side, much to my shock and horror, a pair of my Bengalese finches have moved on in with her and all 3 are now happily incubating the quail eggs, when she gets off they cover more eggs, when she gets back they move over to make room. I thought of trying to stop them but if the Quail hen is fine with it perhaps I should leave them to it ... just proves Bengalese finches will foster anything!*". <http://www.avianweb.com/societyfinches.html>

11.15 Weaning.

After about 30 days the young should be now picking at seed and the formula if still being accepted should be the consistency of pudding by now. Painted Finches become independent at about 7 weeks of age

11.16 Rehabilitation Procedures.

No information for Painted Finch but would place young with adults of their own species as soon as possible after fledging to lessen imprinting.

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Appendix 1

Planned Annual Cycle of Maintenance Activities for Painted Finch (*Emblema pictum*) in a Free Flight Aviary and a normal Aviary situation

	Jan.	Feb.	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.
Times of Breeding												
Routine Worming / medication												
Increase offering of breeding food												
Full Cage cleaning & Renovation												
Routine capture for physical exam - Normal Aviary												

Times of breeding.

It is preferable to restrict them to breeding in the warmer months to give the birds a rest and there is a higher young mortality rate in cooler months when fledging given their habit of staying on the ground for the first week after leaving the nest. In the Free Flight Aviary they usually don't breed successfully in the colder months of May, June, July and August. In early September as the weather warms up and there is an increase in insect life and vegetation growth they start show interest in breeding. In a protected aviary they may have to have coarser nesting materials that are required for the platform part of the nest removed if they try to persist in breeding.

Routine Worming / medication.

Worming about every three months with WORMOUT GEL for Tapeworm, Thread, Hook & Roundworms at 2ml/160mls water for 2 days. Follow up treatment 2 weeks later with CYDECTIN (Sheep & Goat Strength) at 5ml / litre water for 5 days Coccidiosis treatment following any extended period of wet weather with BAYCOX at 3ml/litre for 2 days. In the Free Flight Aviary, water is provided by 2 linked ponds, so draining the ponds to remove non treated water isn't practical. Worming can be done by using DRONCIT or IVERMECTIN mixed with edible oil and soaked overnight and fed as the only source of seed then repeated 2 weeks later.

Increase offering of breeding food

In late August increase availability of soaked / sprouted seed, half - ripe seeds/ seeding grasses, live insects and greens. Before breeding increase availability of calcium in the form of cuttlebone, sterilized eggshell, fine shell grit or as a supplement dusted onto soaked / sprouted seed to ensure no problems with egg laying or Calcium deficiency. Additional vitamin supplements may be added to their feed to help bring into breeding condition.

Full Cage cleaning & Renovation

In mid to late August full clean of Aviary (not Free Flight Aviary) and removal and replacement of crusher grit substrate. Replace / clean perches, any artificial nests and treat aviary for lice and mites. Replace brush. During this time the birds may be removed for physical examination, bring forward worming while you have them caged and consider breeding pair options and if any birds are to be replaced (aging) or surplus to needs. Free Flight Aviary might have new plantings and major Horticultural maintenance or landscaping done. Minor maintenance and Horticultural activities, such as pruning carried out as needed.

Routine capture for physical exam

Capture birds at end of breeding in late April or when last young are old enough to be sexed for physical exam before Winter. In August capture during Aviary renovations before the start of breeding. With the Free Flight Aviary birds would have to be trapped with no guarantee of getting all birds. Banding for identification if needed should be carried out if not done when birds first fledge.

Appendix 2

Incubators and Brooders

TURN-X, A COMPACT TABLE TOP INCUBATOR manufactured by Lyon Electric

Bellsouth

P.O. Box 1233,

Narre Warren, 3805,

Victoria, Australia,

<http://www.bellsouth.com.au/webframe.html>

High Tech Bird and Parrot Brooders Bird [Get Bird Stuff.Com](http://www.getbirdstuff.com)

Pavillion Hospital and Bird Brooder Systems



Pavillion Bird Brooder and Hospital Unit (brooderlarge)

Pavillion medical grade quality brooder for the professional bird breeder. Features: Large, Clear, up sliding front window-door. Temperature & humidity control with Water reservoir, Anion (anti bacterial) function. Digital temperature Setting Limit of 68 F to 100 F, Circuit breaker safety feature for over heat, Digital Humidity Setting Limit of 40% to 70%,

infrared radiate and carbon heating element .Antibiotic air filter included for removing inner dust. Carbon Filter for deodorizing and anion apparatus. Switchable internal light. Easy cleaning design with slide out bottom drawer. 120 Volt AC.

<http://www.avitec.com/Aquarium-Brooder-Tops-p/avq.htm>



The AviQuarium™ brooder top, unlike conventional brooders and aquarium top heaters, uses infrared heat and therefore needs no fans or blowers. There is no noise to startle babies when the heat turns on and no drafts or blowing dust. The AviQuarium™ is equipped with a solid-state thermostat and a remote probe.

Features: The AviQuarium™ brooder top is easy to clean and disinfect. The top of the unit is molded of high impact plastic and has no seams or sharp corners. The heating element is completely sealed under a plastic panel. No tubes or wires protrude to interfere with cleaning. The AviQuarium™ is designed to provide even, safe, and quiet radiant heat throughout the aquarium. There are no bulbs to change, no filters to clean.

Brinsea Products Inc. <http://www.brinsea.com/products/tlc4.html>



TLC-4 Brooder



Brinsea Octagon 20 DX



<http://www.priamsale.com.au/index.asp>

Appendix 3

Product Suppliers

Vetafarm

Phone: (02) 6933 0400

Address: 3 Bye Street, Wagga Wagga, NSW Australia 2650

Fax:(02) 6925 6333

<http://www.vetafarm.com.au>

Priam Psittaculture Centre

2 AUSTRALIS PL.

QUEANBEYAN

NSW 2620 AUSTRALIA

PH: +61-2-61280800

FAX: +61-2-61280810

WEB SITE: www.priam.com.au

EMAIL: psittaculture@priam.com.au

Cooinda Downs [Pastoral](#)

Fax. 0242843011

Free call 1300 788 787

<http://www.cooinda.com>

Birds R Us Retail outlet store at: **Just Birds & Reptiles**

Shop 3 167 Vincent Street

CESSNOCK NSW

2325(02)49903297

Southwest Stockfeeds

1d Moorong St. Wagga Wagga, 2650 NSW

Ph. 02 69214151

Appendix 4

1 Painted Finch (*Emblema pictum*) - BirdLife species factsheet -LC Painted Finch *Emblema pictum*

2010 IUCN Red List Category (as evaluated by BirdLife International - the official Red List Authority for birds for IUCN): **Least Concern**

Justification This species has an extremely large range, and hence does not approach the thresholds for Vulnerable under the range size criterion (Extent of Occurrence 30% decline over ten years or three generations). The population size has not been quantified, but it is not believed to approach the thresholds for Vulnerable under the population size criterion (10% in ten years or three generations, or with a specified population structure). For these reasons the species is evaluated as Least Concern.

Family/Sub-family Estrildidae

Species name author Gould, 1842

Taxonomic source(s) Christidis and Boles (1994), Christidis and Boles (2008), Sibley and Monroe (1990, 1993)

Population estimate

unknown

Population trend

unset

**Range estimate
(breeding/resident)**

1,300,000 km²

Country endemic?

Yes

Important Bird Areas Click [here](#) to view map showing IBAs where species is recorded and triggers any of the IBA criteria.

Text account compilers Stuart Butchart (BirdLife International), Jonathan Ekstrom (BirdLife International)

IUCN Red List evaluators Jeremy Bird (BirdLife International), Stuart Butchart (BirdLife International)

Additional data

IUCN Red List history

Year	Category
2009	Least Concern
2008	Least Concern
2004	Least Concern
2000	Lower Risk/Least Concern
1994	Lower Risk/Least Concern
1988	Lower Risk/Least Concern

Range

	Estimate	Data quality
Extent of Occurrence breeding/resident (km ²)	1,300,000	medium

Population & trend

	Estimate	Data quality	Derivation	Year of estimate
No. of mature individuals	unknown	unset	unset	0

Population justification: The global population size has not been quantified, but the species is described as uncommon or locally common (Clement 1999).

Trend justification: The population is suspected to be stable in the absence of evidence for any declines or substantial threats.

Country/Territory distribution

Country/Territory	Occurrence status	Extinct	Breeding/resident	Non-breeding	Passage
Australia	native		yes		

Important Bird Area Distribution

Country	IBA name
Australia	Boodjamulla
Australia	Buckley River
Australia	Fortescue Marshes
Australia	Mornington Sanctuary
Australia	Simpson Desert

Habitats & altitude

Habitat (level 1)	Habitat (level 2)	Importance	Occurrence
Artificial landscapes (terrestrial)	Rural gardens	marginal	resident
Grassland	Subtropical/tropical (lowland) dry grassland	major	resident
Savanna	Dry savanna	suitable	resident
Shrubland	Subtropical/tropical (lowland) dry shrubland	suitable	resident

Recommended citation BirdLife International (2010) Species factsheet: *Emblema pictum*. Downloaded from <http://www.birdlife.org> on 6/8/2010

This information is based upon, and updates, the information published in BirdLife International (2000) *Threatened birds of the world*. Barcelona and Cambridge, UK: [Lynx Edicions](#) and BirdLife International, BirdLife International (2004) *Threatened birds of the world 2004 CD-ROM* and BirdLife International (2008) *Threatened birds of the world 2008 CD-ROM*. These sources provide the information for species accounts for the birds on the [IUCN Red List](#).

Appendix 5

Some Medications

A mugs guide to worming Finches!! Article from Finch Society web page

<http://www.finchsociety.org/cfa/worms/worms.htm>

DRONCIT: Crush one 50mg tablet and mix with small quantity of edible oil and add to 3kg of seed. Leave overnight to be fully absorbed. Feed as ONLY source of seed. Repeat treatment 2 weeks after initial treatment. Treats for tapeworm ONLY. Active agent praziquantal..

IVERMECTIN: Add 3mls to any food oil and mix with 1kg of seed, soak over night before feeding to finches. Use as only source of seed. Repeat 2 weeks later. Sold as Ivomec (sheep drench ONLY) Effective against most gape, gizzard and roundworms plus scaly and air-sac mites. A.Benson (1993) in FINCH NEWS June p.146. Can also be mixed with alcohol (not water!) and added to the back of the neck to control air sac mite.

CYDECTIN - (Cyanamid-Websters) Active ingredient moxidectin. Works on gizzard worms, air sac mites and roundworms. Birds DO NOT like the taste so try it mixed with strawberry conserve or some other sweetener. Sheep and goat type NOT cattle strength.

MIX= 5ml/litre water for 5 days. Repeat 2 weeks later

LEVAMISOLE: Available as Big L, Nilverm and Avitrol plus. Active ingredient is levamisole hydrochloride 16gr/L. Dose rate for Big L & Nilverm is 40mls/litre for 24hrs. Repeat each week for 3 weeks. Reduction may be necessary for Parrotfinches. Avitrol plus - 25mls/litre for 24hrs. Repeat as for others. Effective against round & gizzard worms. No matter which coloured solution you use most birds detest the taste. A sweetener should be used and remove all other sources of moisture

PANACUR 100: Fenbendazole as its main ingredient. Panacur 100. For use against nematodes ,roundworm, hairworm & gizzardworm infestation. One point is when replacing daily make sure you scrub out the bowls as the Panacur will settle out a bit - this ensures your birds don't get overdosed if the water level falls significantly.

MIX- 0.5mls/litre for 5 days.

Oxfen - (Virbac) Active ingredient is oxfendazole 22.6gr/L - there are several types of this one, use only the sheep and goat types. This wormer dissolves in water reasonably well and has no taste.

MIX= 5mls/litre water for 5 days treats both roundworms and may be effective against Tapeworms. Repeat 2 weeks later.

OXFENDAZOLE:

Sold as Synanthic, Oxfen&. Systemex Oxfen (sheep & goat ONLY) it partially dissolves in water & is tasteless Effective against roundworm and partially against tapeworm if given for 5 days.

MIX- 5mls/litre

WORMOUT GEL - (Vetafarm/L) main ingredients are praziquantel (for tapeworms) and oxfendazole (caecal, thread, hook & roundworms)

MIX= 2ml/160mls water for 2 days

BAYCOX - (Bayer Chemicals) coccidia. Birds drink it with no problems MIX= 2ml/litre water for 2 DAYS

COCCIVET (Vetafarm) Amprolium 80g/L Ethopabate 5.1g/L: MIX 15mL of Coccivet in 10 Litres of drinking water, remove all other drinking sources during treatment.

Appendix 6

MULTI-CLENS**ANTISEPTIC/DISINFECTANT** (Chlorhexidine Digluconate 10mg/mL)

Chlorhexidine inhibits the growth of a wide range of Gram-positive and Gram-negative bacteria and is also active against many viruses, fungi and algae.

Add to drinking water

Use to prepare soaked seed

Directions: For drinking water and soaking seed. Add 5mL (1 Teaspoon) to 10 Litres of fresh water.

For general disinfecting. Add 20mL (4 Teaspoons) to 1 Litre of fresh water.

Available in 50ml, 250ml, 500ml, 1 litre and 5 litre containers



Chlorhexidine Digluconate 10mg/mL

Add to drinking water
Use to prepare soaked seed

Inhibits the growth of bacteria, fungi and algae
Safe to use daily for birds and animals

Directions

For drinking water and soaking seed
Add 5mL (1 Teaspoon) to 10 Litres of fresh water

For general disinfecting
Add 20mL (4 Teaspoons) to 1 Litre of fresh water

250mL

PASSWELL PTY LTD
ACN 008 137 175
8 Oborn Rd Mt Barker 5251

Appendix 7

Passwell Soft Finch Food

This is a unique product prepared from ingredients high in essential amino acids and contains added vitamins, minerals and other essential nutrients to provide an ideal alternative to live food. It is a concentrated, highly digestible source of animal protein suitable for all finches, waxbills, weavers, whydahs and soft bills. Suitable as a high protein supplement for all birds

Analysis

Minimum Crude Protein 30%

Maximum Fibre 7%

Minimum Crude Fat 12%

Maximum Salt 1%

Ingredients: Whey and soy protein isolates, meat meal, blood meal, oat meal, vegetable oils, omega-3 and omega-6 fatty acids, methionine, lysine, colour enhancers, vitamins A, B₁, B₂, B₁₂, C, D₃, E, K, nicotinamide, pantothenic acid, biotin, pyridoxine, folic acid, choline, inositol, calcium, phosphorus, potassium, zinc, sodium, magnesium, manganese, iron, copper, cobalt, iodine and selenium

Passwell Soft Finch Food is a granular powder and should be stored in an airtight container in a cool dry place.

USING PASSWELL FINCH SOFT FOOD

To prepare a moist, crumbly soft food, slowly add warm water to the powder while mixing. Prepare food fresh for each day. Feed as a supplement with insects or as a complete substitute for insects, to Australian finches, foreign finches, weavers and whydahs

Introduce in small quantities until it is accepted. Fussy birds can be enticed by mixing a few small meal worms, fly pupae, termites or other treat in the food.

Non-breeding birds

Small finches and waxbills	1 heaped teaspoon of prepared food per five birds daily
Large finches, weavers and whydahs	1 heaped teaspoon of prepared food per pair of birds daily
Whistlers, Wood Swallows	2 heaped teaspoon of prepared food per pair of birds daily
Wrens, Robins, Chats	1 heaped teaspoon of prepared food per pair of birds daily

Breeding Birds

Once breeding has begun offer as much prepared Passwell Soft Finch Food as the birds will eat. When the chicks have fledged, reduce the amount back to a heaped teaspoon per pair per day. After the moult, feed the amounts suggested for non-breeding birds.