

Free Flight Training as a Tool for Psittacine Reintroductions

Supplementary Materials



Figure S1. The portable aviary used to release six Blue-and-yellow Macaws in southeastern Brazil. The aviary was 7 m long, 1.8 m wide and 3 m high. A) the release aviary in position at the release site. B) side view of the aviary with author Humberto Mendes holding two of the temporary kernel flock birds (the third kernel bird is in the small cage on the side of the aviary). C) Author HM working with the three kernel flock birds. Notice the top half of the back door is open. D) Inside view of the aviary showing the doors to the small partition closed. For more information on the design of the aviary see Video S1.



Figure S2. Author HM rewarding Blue-and-yellow macaw fledglings with hand feeding formula during early stages of free flight training.

Table S1: Example of a bi-weekly developmental progress assessment. This is an example taken from the original field journal that represents the progress of each bird (#01 to #06) on 29 May 2022. The symbols and numbers in the table are as follows “-” = the bird has not had the opportunity to do this yet, 0 = it is not developmentally ready to try this yet, 1 = The individual has begun but has only a low level or beginning ability, 2 = a mid-level ability but still has not mastered the behavior, and 3 = the individual has mastered the behavior. These tables were filled out approximately twice per week from 23 May 2022 to 3 February 2023.

| Behavior | #1 | #2 | #3 | #4 | #5 | #6 |
|--|-----------|-----------|-----------|-----------|-----------|-----------|
| Perching | 3 | 3 | 3 | 3 | 3 | 3 |
| 180 turn on perch | 3 | 3 | 3 | 3 | 3 | 3 |
| Hop 6 in for food | 3 | 3 | 3 | 3 | 3 | 3 |
| Hop 2ft for food | 3 | 3 | 3 | 3 | 3 | 3 |
| Fly 4ft for food | 3 | 3 | 3 | 3 | 3 | 3 |
| Fly 6ft for food | 3 | 3 | 3 | 3 | 2 | 2 |
| Fly 12ft for food | 3 | 3 | 3 | - | - | - |
| Fly 6ft external from trailer | 3 | 3 | 3 | - | 0 | 0 |
| Fly 12ft external from trailer | 3 | 3 | 3 | 0 | - | - |
| Fly 30ft external from trailer | 3 | 3 | 3 | - | - | - |
| Fly 50ft external from trailer | 3 | 3 | 3 | - | - | - |
| Fly 70ft external from trailer | 3 | 3 | 3 | - | - | - |
| Navigating while Flying circular flights near aviary | 3 | 3 | 3 | - | - | - |
| Navigating while Flying circular flights far from aviary | 2 | 2 | 2 | - | - | - |
| Flock flying | 2 | 2 | 2 | - | - | - |
| Tree landings | 2 | 2 | 2 | - | - | - |
| At liberty 4 hours before 1 feeding | 2 | 2 | 2 | - | - | - |
| At liberty 8 hours before 2 feedings | 1 | 1 | 1 | - | - | - |
| At liberty 24 hours, with supplemental feeding | - | - | - | - | - | - |
| At liberty 24 hours, no supplemental feeding | - | - | - | - | - | - |
| Chewing on foods in trees | 1 | 1 | 1 | - | - | - |
| Feeding self on local foods | | | | - | - | - |
| Navigating to distant points and returning – likely to be expanded | 0 | 0 | 0 | - | - | - |

Video S1: The aviary. This video is a tour of the project's mobile aviary including design considerations and construction flaws. <https://youtu.be/Nr0MzrhKpfo&t=50s>

Video S2: Initial flights to and from mobile aviary. This shows one of the earliest training sessions for one of the release candidate including returning the bird to the aviary at the end of training. https://youtu.be/watch?v=DCvxTj_wFuE

Video S3: Bird in training misses flying to the perch inside the aviary, flies in a wide circle, and lands back on the aviary. This happened on at least 8 occasions during the study and did not result in the loss of any birds or any other negative consequences. <https://www.youtube.com/watch?v=LadJsZD95eY>