

## CONSUMPTION OF LEÑADURA (*MAYTENUS MAGELLANICA*) SEEDS BY THREE PRIMARILY INSECTIVOROUS BIRD SPECIES

### CONSUMO DE SEMILLAS DE LEÑADURA (*MAYTENUS MAGELLANICA*) POR TRES ESPECIES DE AVE PRINCIPALMENTE INSECTÍVORAS

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The temperate forests of southern Chile and Argentina are home to a number of endemic bird species (Rozzi *et al.* 2003). Many are wholly or principally insectivorous (Jaksic & Feinsinger 1991). Three of these species, a furnarid and two tyrannid species, are found as far south as Navarino Island in the Cape Horn Biosphere Reserve, Chile. The Patagonian tyrant (*Colorhamphus parvirostris*) is considered an insectivorous species (Johnson 1967, del Hoyo *et al.* 2004), although it has been seen to take the seeds of maiten (*Maytenus boaria*) in winter (Barros 1921). The fire-eyed diucon (*Xolmis pyrope*) is also known to be mainly insectivorous (Lazo & Anabalon 1992), but is reported to eat different types of fruits and seeds in certain parts of its range (Johnson 1967, Rozzi *et al.* 1996, Egli & Aguirre 2000). The thorn-tailed rayadito (*Aphrastura spinicauda*), long considered strictly an insect-eater, has recently been shown to consume some seeds of exotic pine trees (*Pinus radiata*) (Estades 2001) and peck at fruits of *Berberis*, *Ribes* and *Gunnera* (del Hoyo *et al.* 2003). Here, three instances of observations of fruit-eating behavior in these bird species are reported for the subantarctic forests of the Cape Horn Biosphere Reserve.

Since 2000, the Omora Ethnobotanical Park has been conducting an ongoing mistnetting study of the forest birds on Navarino Island, Chile (54°55'S: 67°39'W) (Anderson & Rozzi 2000, Anderson *et al.*

2002, McGehee *et al.* 2004). A description of the program can be found in Anderson & Rozzi (2000) and Anderson *et al.* (2002). During mistnetting operations on March 24, 2004, a Patagonian tyrant was seen actively perch hunting for insects in the Omora Park. It then flew into a leñadura (*Maytenus magellanica*) tree and was seen to consume two fruits. This same Patagonian tyrant then resumed its perch hunting for insects.

On April 10, 2005 two Patagonian tyrants were seen in the same leñadura tree. Each would sit on a branch of the tree or in a firebush (*Embothrium coccineum*) intertwined with the leñadura. The Patagonian tyrants would fly from their perch, hover and pluck the fruit, then fly back to a branch and swallow the fruit. This was done on and off for over six hours. Twice they were seen to regurgitate the fruit, open their beaks, chew the seeds and then reswallow the food item. Usually two to three fruits were eaten in 10-15 seconds, followed by a 30 second pause that was followed by another series of fruit plucking and eating. This continued for approximately 40 minutes. The birds would then fly off and reappear approximately 30 minutes later and repeat the fruit eating off and on for the next four hours. The Patagonian tyrants appeared to be swallowing the fruits whole.

During the time the Patagonian tyrants were eating fruits, another species considered to

be primarily insectivorous, the diucon (*Xolmis pyrope*), was seen to consume these fruits well. A diucon flew in and ate a leñadura fruit, plucking it while hovering and then flying to a nearby branch and swallowing it whole. The individual repeated this three times, then flew off. Throughout that day, flocks of 10-16 rayaditos would pass through the trees as well. They would hang from a leñadura branch and pluck a fruit and fly away. A few would land on a nearby branch, hold the fruit against the branch with their foot and proceed to tear off the fruit and swallow one or both seeds. The rayaditos appeared to only take one or two fruits before moving on. It is not known whether the same flock was passing through all-day or different flocks. In 2006, this tree produced very little fruit but 3 times on April 16<sup>th</sup> a rayadito was seen flying off with a fruit in its beak. On April 15<sup>th</sup> and April 17<sup>th</sup>, 2005 in an area about 120 meters from the initial site, rayaditos were seen eating fruit from another leñadura tree. This tree was observed for seven hours on the 15<sup>th</sup> and eight hours on the 17<sup>th</sup>, and only rayaditos were seen at this tree although diucons were in the area. The rayaditos were seen eating the fruit in this leñadura tree during the full period of observation. This tree produced no fruit in 2006.

*Maytenus* is a tree genus restricted to Central and South America with two species recorded in southern Chile and Argentina (Dollenz 1995). Leñadura (*M. magellanica*) are found from Hoste and Navarino islands north through Chile and Argentina to 40°S (Moore 1983). In late summer, it produces a fruit capsule of 4-6 × 4-4.5 mm containing two seeds (Moore 1983). This tree species is rather rare on the northern part on Navarino Island, as feral cows that inhabit the island frequently eat its leaves (R. Charlin, pers. comm.). The fruit of a closely related species *Maytenus boaria* have also been seen to be consumed by Patagonian tyrants in the winter (Barros 1921). Diucons are also known to eat fruits occasionally in central Chile as well (Egli & Aguirre 2000).

On April 10<sup>th</sup>, there was intermittent snowfall with all three bird species eating the leñadura fruit during these periods of snow lasting 10-20 minutes. However, on April 15<sup>th</sup> and 17<sup>th</sup> it was sunny each day. It is possible that the Patagonian tyrants and the diucons were supplementing their diet during short periods when their primary prey,

flying insects, were not moving due to cold climatic conditions. Rayaditos on the other hand, may take fruits and seeds whenever the opportunity presents itself (del Hoyo *et al.* 2003). The implications for plant seed dispersal by principally insectivorous birds are important to consider for the ecology of subantarctic forests, as well as general assumptions about the diet of austral bird species, particularly in extreme limits of their distribution, where their ecology and behavior may be different than other parts of Chile.

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#### LITERATURE CITED

- Anderson, C.B. & R. Rozzi 2000. Bird assemblages in the southernmost forests in the world: Methodological variations for determining species composition. *Anales Instituto Patagonia, Serie Cs. Nat. (Chile)* 28: 89-100.
- Anderson, C., R. Rozzi, C. Elphick & S. McGehee 2002. El programa Omora de anillamiento de aves en los bosques subantárticos: estandarización del tamaño de los anillos apropiados para las aves de la Región de Magallanes. *Boletín Chileno de Ornitología* 9: 2-11.
- Barros, R. 1921. Aves de la Cordillera de Aconcagua. *Revista Chilena de Historia Natural* 25:167-192
- del Hoyo, J., A. Elliot & D.A. Christie 2003. *Handbook of the birds of the world*. Volume 5. Lynx ediciones, Barcelona

- del Hoyo, J., A. Elliot & D.A. Christie 2004. *Handbook of the birds of the world*. Volume 6. Lynx ediciones, Barcelona
- Dollenz, O. 1995. *Los árboles y bosques de Magallanes*. Ediciones Universidad de Magallanes, Punta Arenas
- Egli, G. & J. Aguirre 2000. *Aves de Santiago*. UNORCH, Chile
- Estades, C. F. 2001. Consumo de semillas de pino (*Pinus radiata*) por rayaditos (*Aphrastura spinicauda*). *Boletín Chileno de Ornitología* 8: 30-31.
- Fjeldsa, J. & N. Krabbe 1990. *Birds of the High Andes*. Zoological Museum, University of Copenhagen, Denmark.
- Jaksic, F.N. & P. Feinsinger 1991. Bird assemblages in temperate forests of North and South America: a comparison of diversity, dynamics, guild structure, and resource use. *Revista Chilena de Historia Natural* 64: 491-510.
- Johnson, A.W. 1967. *The birds of Chile and adjacent regions of Argentina, Bolivia and Peru*. Vol. 2, Platt Establ. Gráficos, Buenos Aires.
- Lazo, I. & J.J. Anabalon 1992. Dinámica reproductiva de un conjunto de aves Passeriformes de la sabana de espinos de Chile central. *Ornitología Neotropical* 3:57-64.
- McGehee, S.M., R. Rozzi, C.B. Anderson, S. Ippi, R. Vásquez & S. Woodland 2004. Late summer presence of the Patagonian tyrant, *Colorhamphus parvirostris* (Darwin) on Navarino Island, Cape Horn County, Chile. *Anales Instituto Patagonia, (Chile)* 32: 25-33.
- Moore, D.M. 1983. *Flora of Tierra del Fuego*. Anthony Nelson, England.
- Rozzi, R., J.J. Armesto, A. Correa, J.C. Torres-Mura & M. Sallaberry 1996. Avifauna de bosques primarios templados en islas deshabitadas del archipiélago de Chiloé. *Revista Chilena de Historia Natural* 69: 125-139.
- Rozzi, R., F. Massardo, C. B. Anderson, S. McGehee, G. Clark, E. Ramilo, U. Calderón, C. Calderón, L. Aillapan, & C. Zárraga 2003. *Guía Multi-étnica de Aves de los Bosques Templados de Sudamérica Austral*. Editorial Fantástico Sur. Punta Arenas.

