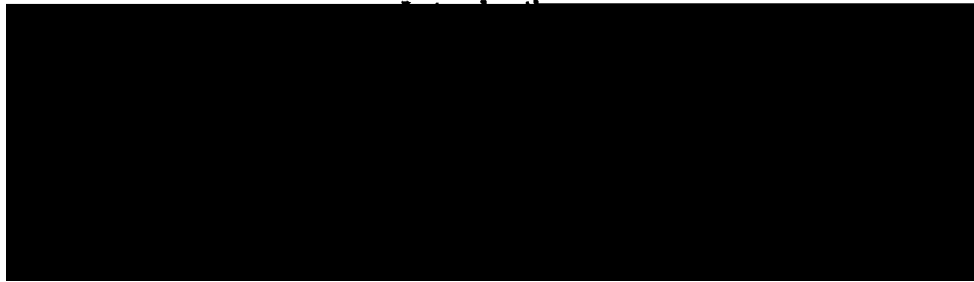
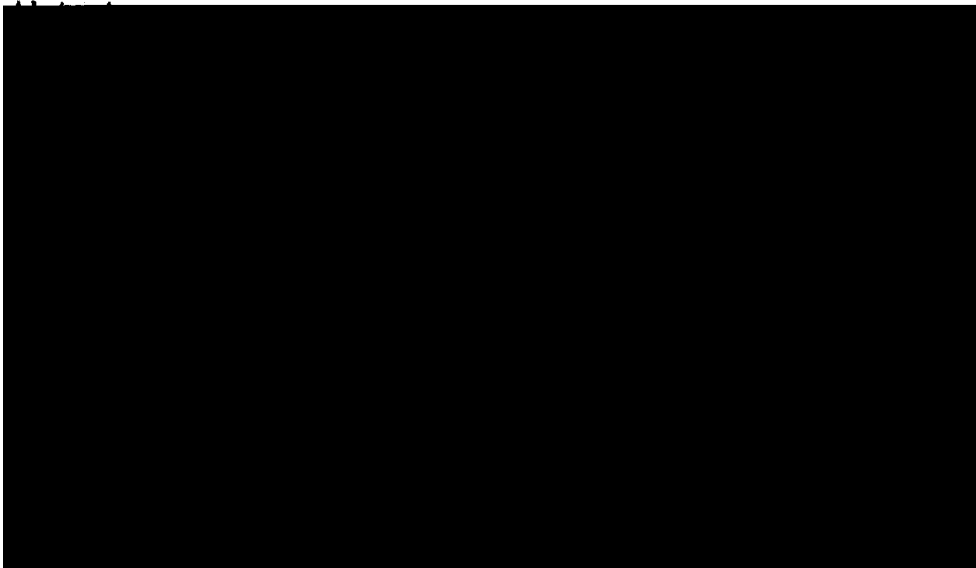


1988. Proc. 19th Int. ~~at the University of California~~
Pp. 827-845

Four Constraints on Coevolution Between Fruit-eating Birds and Fruiting Plants:

~~Author's name~~ ~~Department~~ ~~Section of Ecology and Systematics~~
s, Cornell University, Ithaca, N.Y.



~~Present address: Department of Biology, University of Maryland, College Park, Maryland, 20742~~

has been strongly influenced by the rise of the...



Methods

[Redacted text block]

[Redacted text block]



For example, an *Ocotea tonduzii* tree bore about 65 000 1.4-g fruits in 1979,

0 in 1980, 55 000 in 1981, 10 000 in 1982, 10 000 in 1983, 60 000 in 1984

Field Observations

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Field Observations

[Redacted text block]

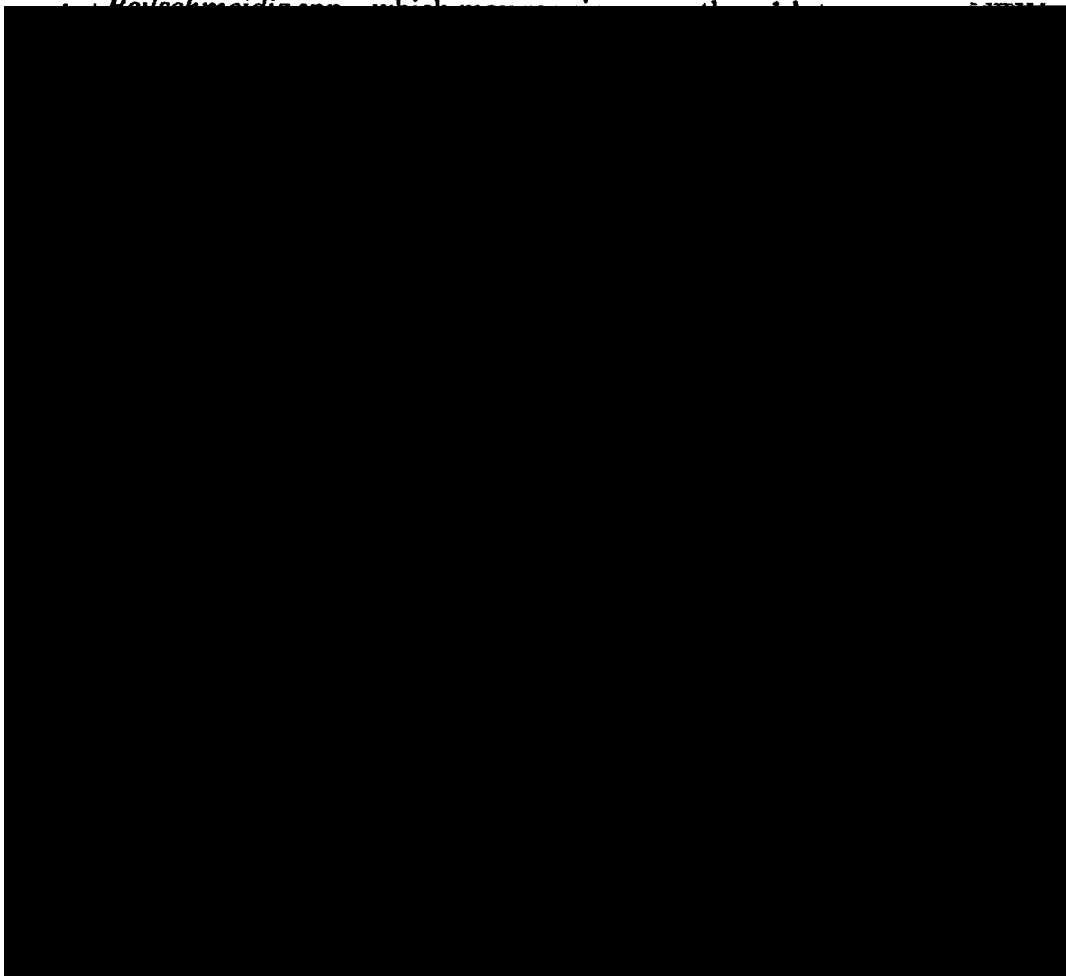
Results

Week Selection: Noticeable Differences in the Behavior of Seed Dispersors

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Table 1. Characteristics of the four main avian seed dispersers of lauraceous plants at Monteverde, Costa Rica

Species	Mass (g)	Foraging	Social system
Resplendent Quetzal	205 (males) [REDACTED]	Solitary to loose groups of up to [REDACTED]	Monogamy
Three-wattled Bellbird	210 (males) 150 (females)	[REDACTED]	Polygyny
[REDACTED]	160	Solitary to flocks [REDACTED]	Monogamy
Mountain Robin	95	[REDACTED]	Monogamy

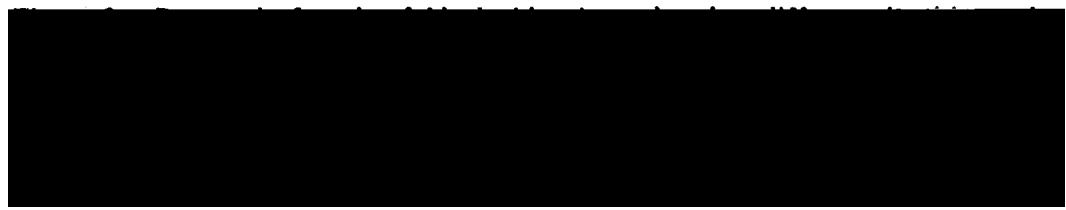


SEEDS REMAINING

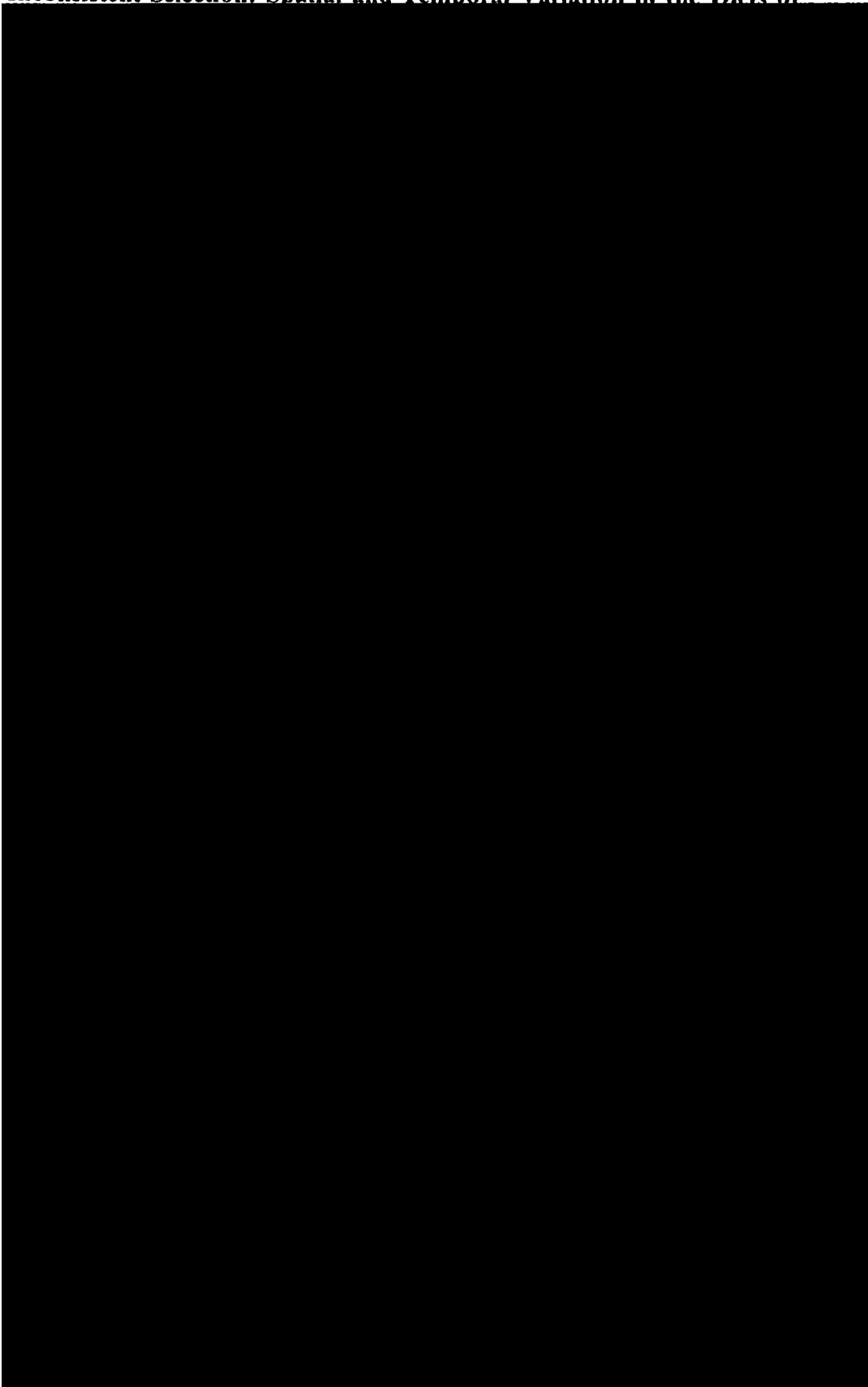
SEEDS REMAINING

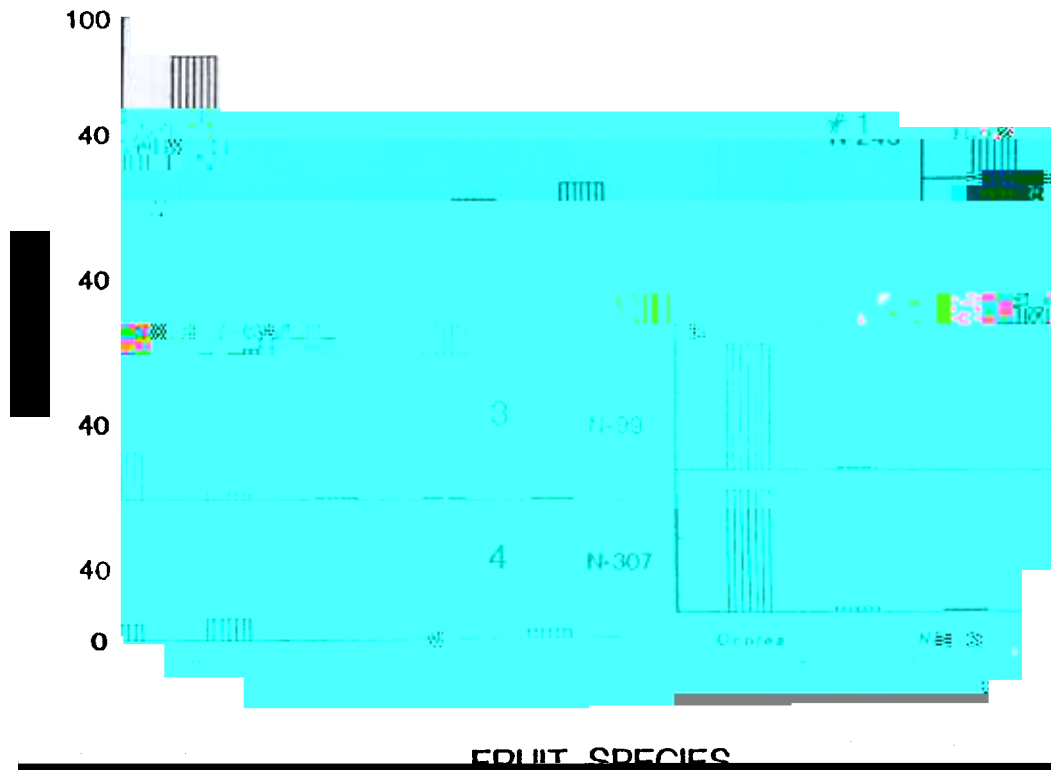


DATE



Inconsistent Selection: Spatial and Temporal Variation in the Diets of





... that ... for several months ...

Antagonistic Selection: Fruit Choice, Seed Size, and Seed Predation

Two examples will illustrate how different sources of selection with opposite effects may constrain coevolution. The first example concerns factors that favor and disfavor increasing seed and fruit size. Large seeds produce more vigorous

Ocolee 14

Bellschmidia 0.6

NEW NUMBER OF FRUITS



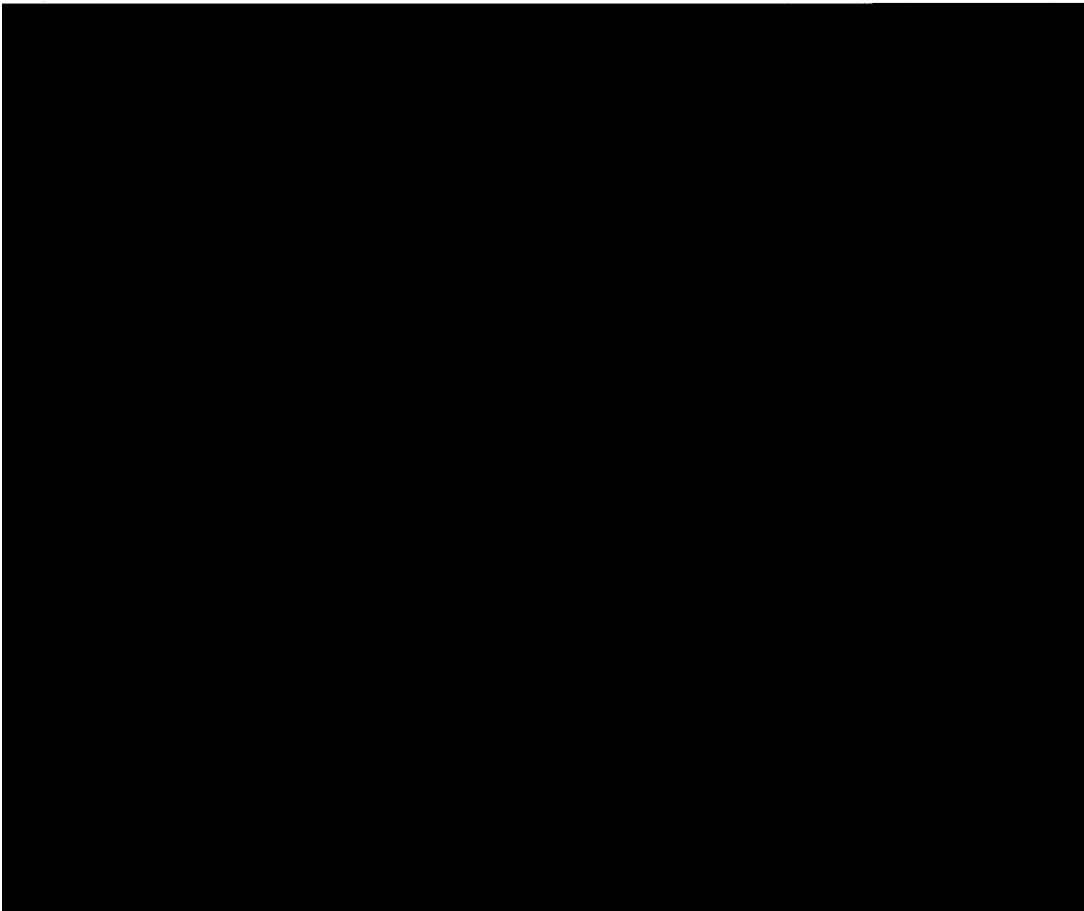
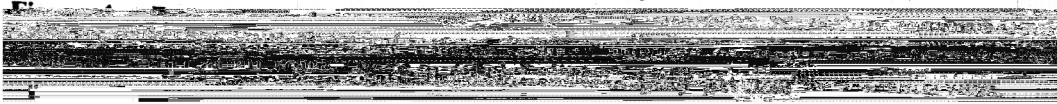
Nassella 3

Oreopanax



3 5 6

16 17 18 19 20



50

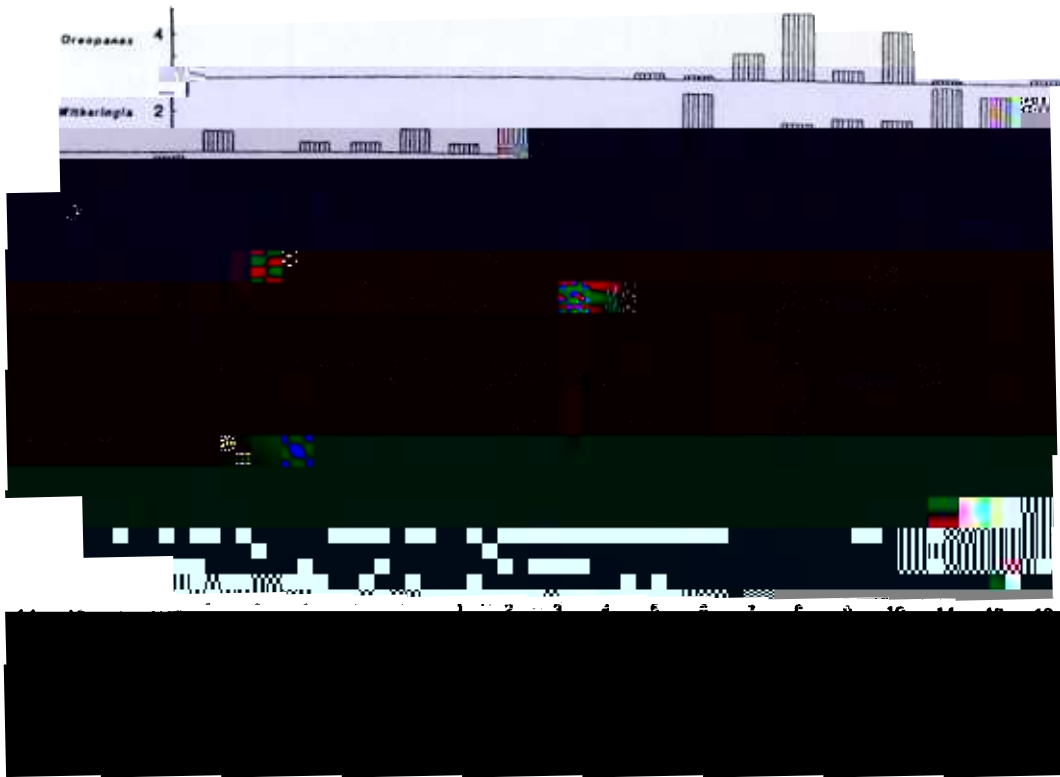
PERCENT OF DIET

FRUIT SPECIES

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Yet displaying male ballbirds deposit most seeds in sites that guarantee

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Limitations on Evolutionary Processes

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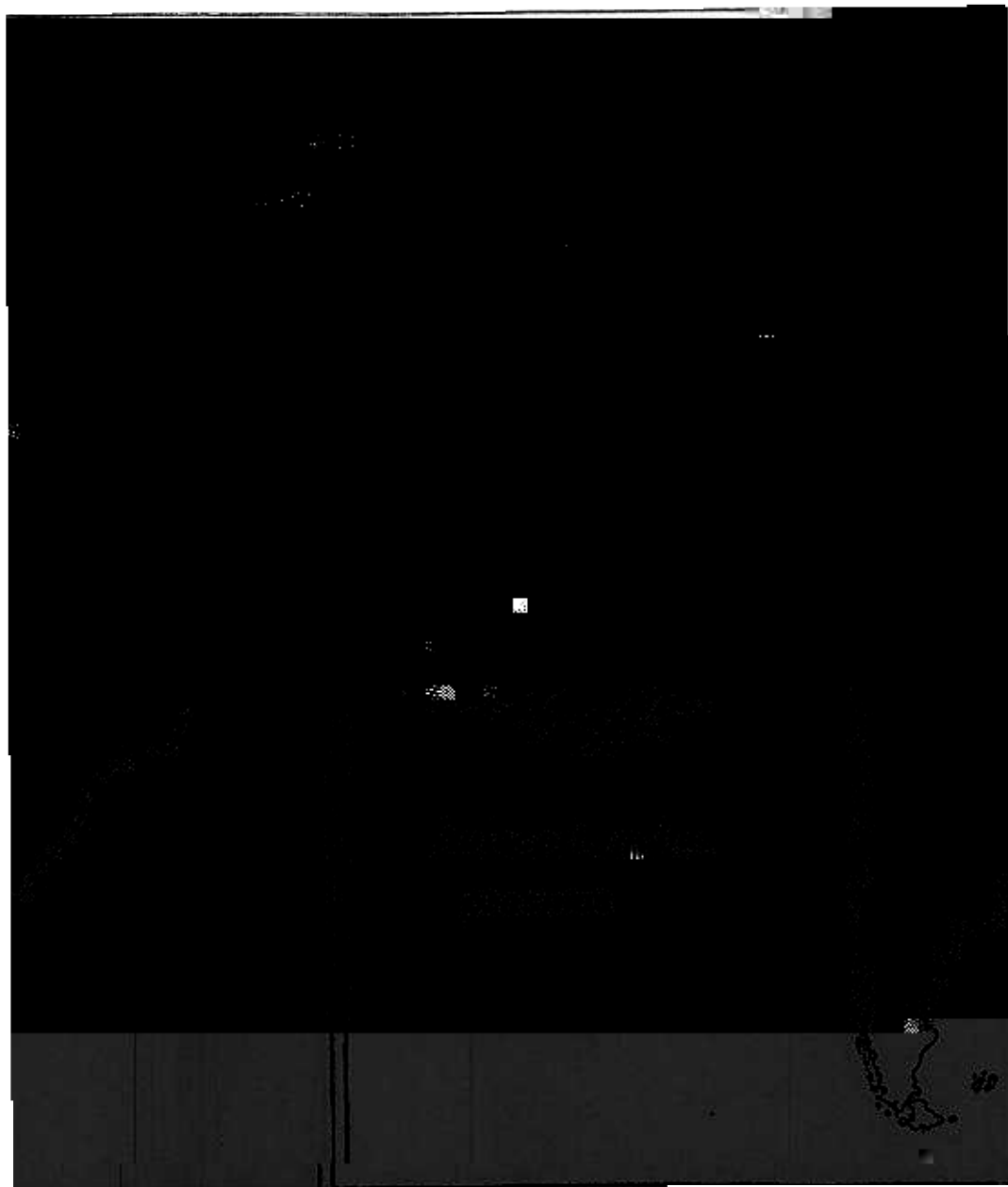


Figure 7. Geographic ranges of Emerald Loucanets and *C. d. m.* in the Hawaiian Islands.

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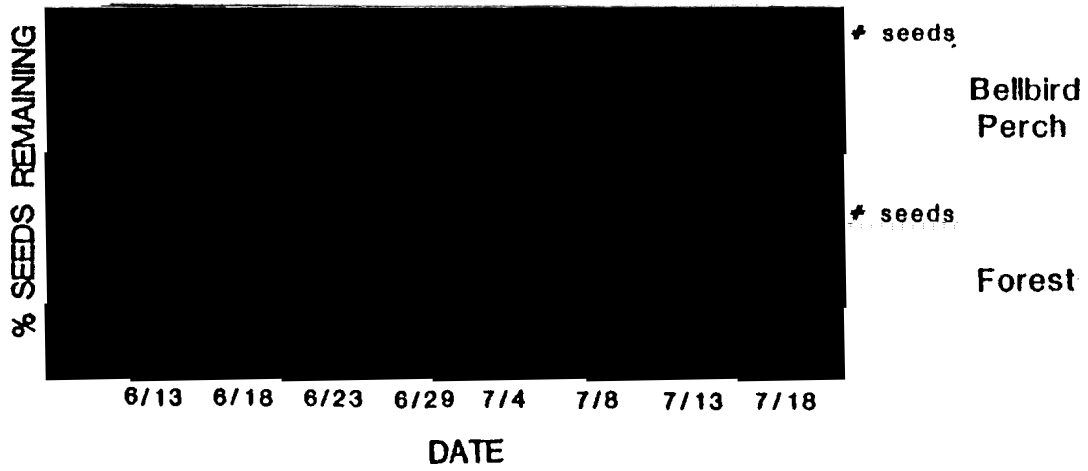


Figure 8. Removal rates of *Quercus* acorns by *Perisoreus* and *Geothlypis* in the

[Redacted]

The second class of limitations includes the same factors that slow evolu

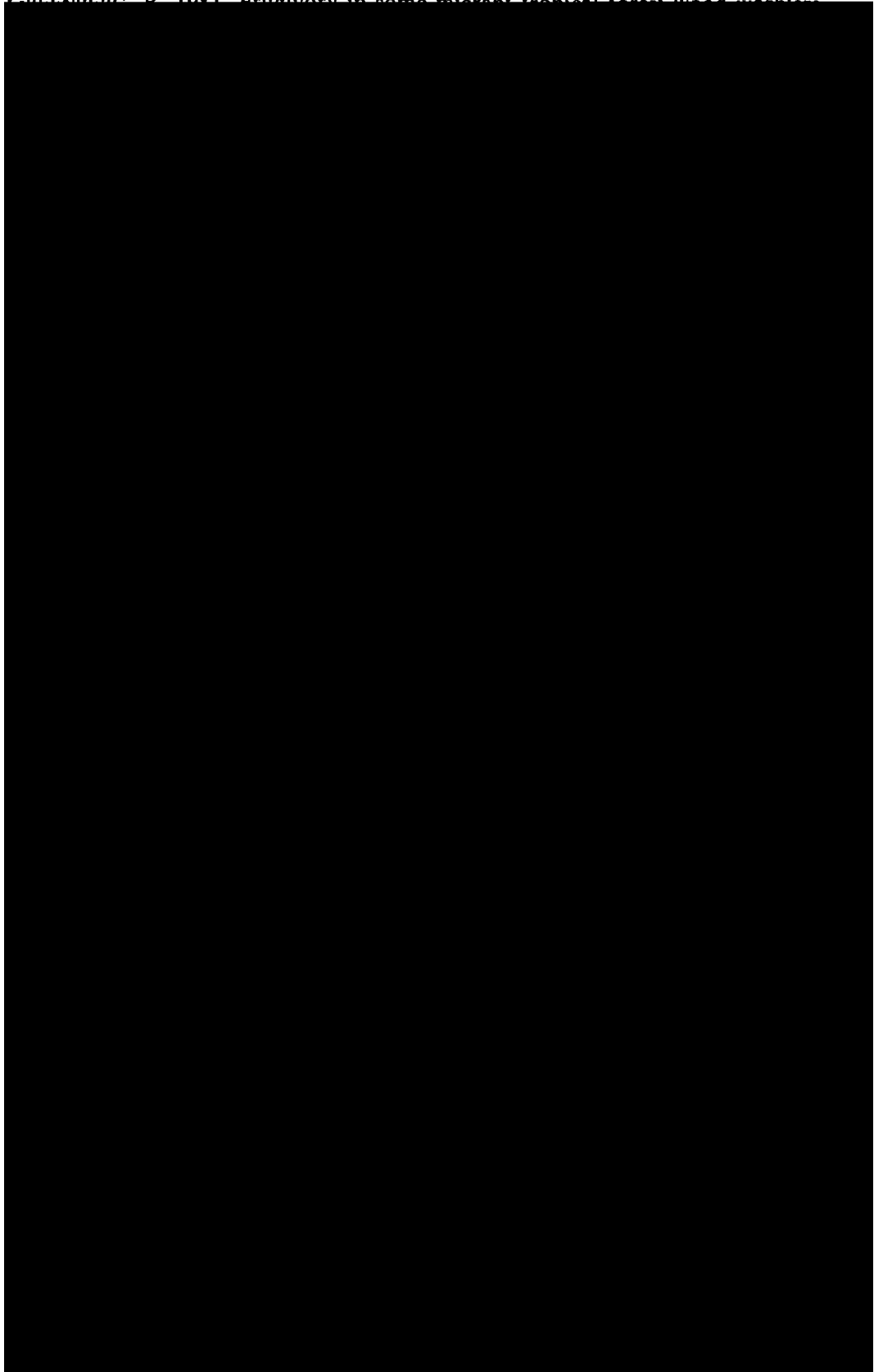
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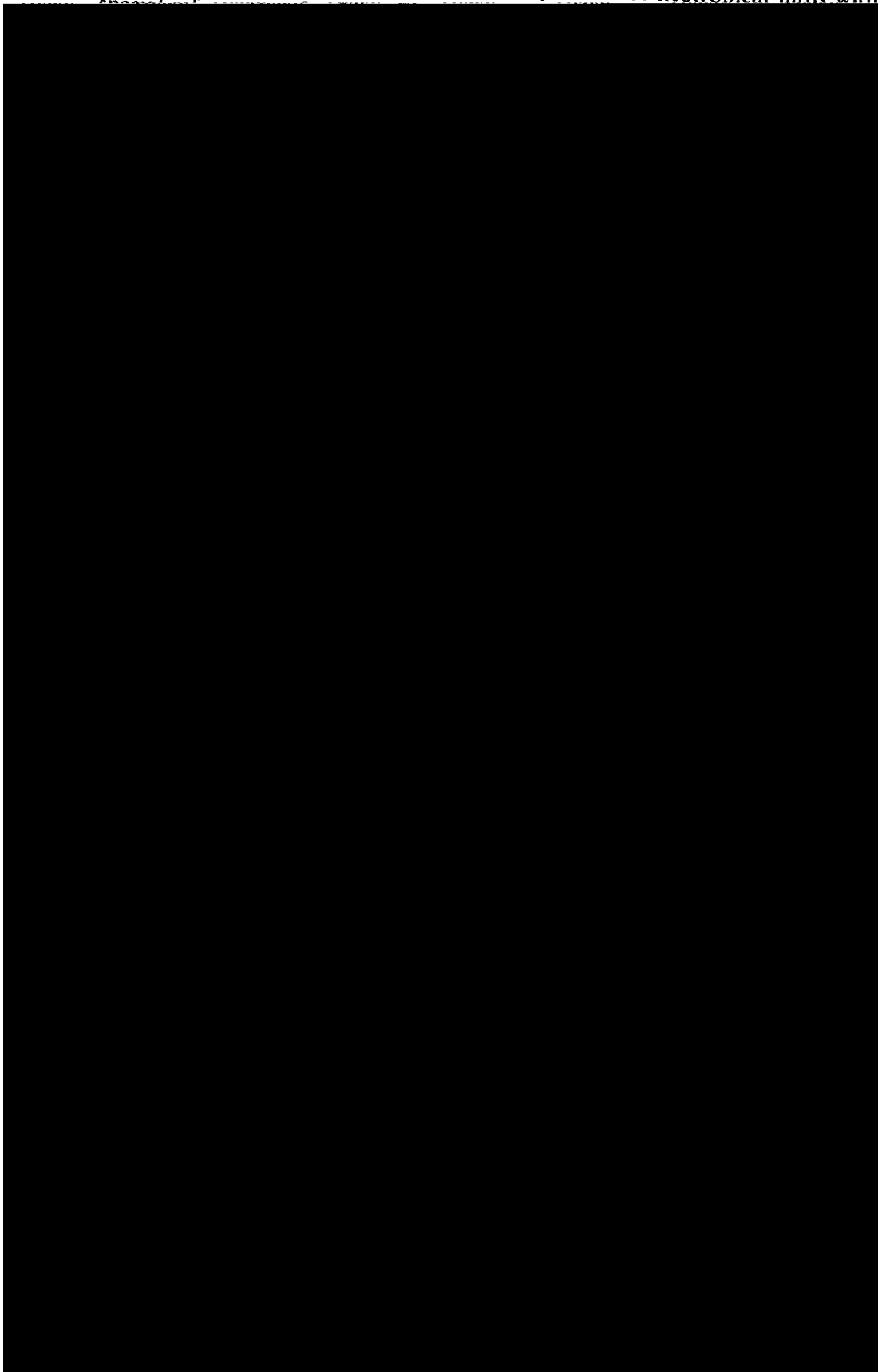
populations of three tree species found on both Trinidad and Tobago, which



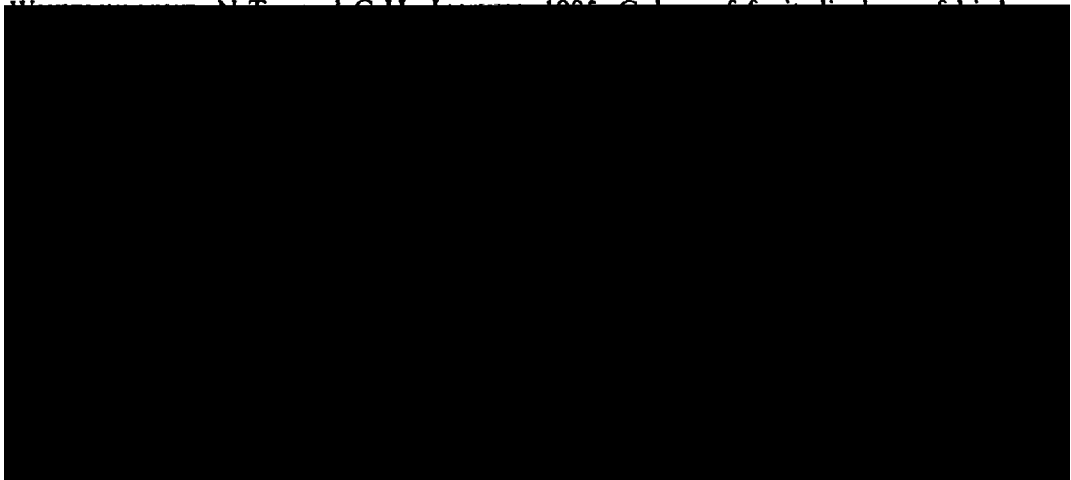
GREENBERG, P. 1981. Fruivory in some migrant tropical forest woodpeckers



MARTIN, T.E., and J.R. KARR. 1986. Temporal dynamics of neotropical birds with
special reference to the



Winnipeg, N.T. 1911. *Journal of the Geological Survey of Canada*, 31: 1-10.



Winnipeg, N.T. 1911. *Journal of the Geological Survey of Canada*, 31: 1-10.