ESTIMATE OF NET GAIN/LOSS COMPARING AVIAN POPULATION GAIN FROM NATIVE PLANTS

In a paper in 2018 Narango, Tallamy and Marra determined that if the native portion of the feeding range of a chickadee pair is above 70%, that a sustainable population can be achieved. fn 1

Breeding Range -	84,959 sq. ft.			
Window Mortality	average for home with windows		2	
Window Mortality	average for home with feeders		4	fn. 2
Gain from Native plants -	Assuming 5 species and second broods		20	fn.2 - 2 added nestlings per nest
Cat related mortality	see footnote 4		8	
Breeding Range	circle with radius of 50 M= sq. feet		7,893	Narango, p. 1.
		breeding range	84,959	
		average lot size	10,000	
	Number of residences with windows		8	
Window Related Mortality		Yards 1-8		Cat Related Mortality Per Yard
		1	2	8 footnote 4
		2	2	8
		3	2	8
		4	2	8
		5	2	8
		6	2	8
		7	4	8
		8	4	8
	Total Window Related Mortality		20	Total Cat 64
Gain from Native Plants				
	Gain per species if all range is 70+		2	Footnote 2
	Pop. Gain if only one yard is >70%		0.25	
	# of species in range		5	
	Gain if single brood		10	
	Double brood gain		20	Narango did not assume a 2nd brood
	Net Gain or loss window collisions		0	
	Net gain/loss from cats			-44

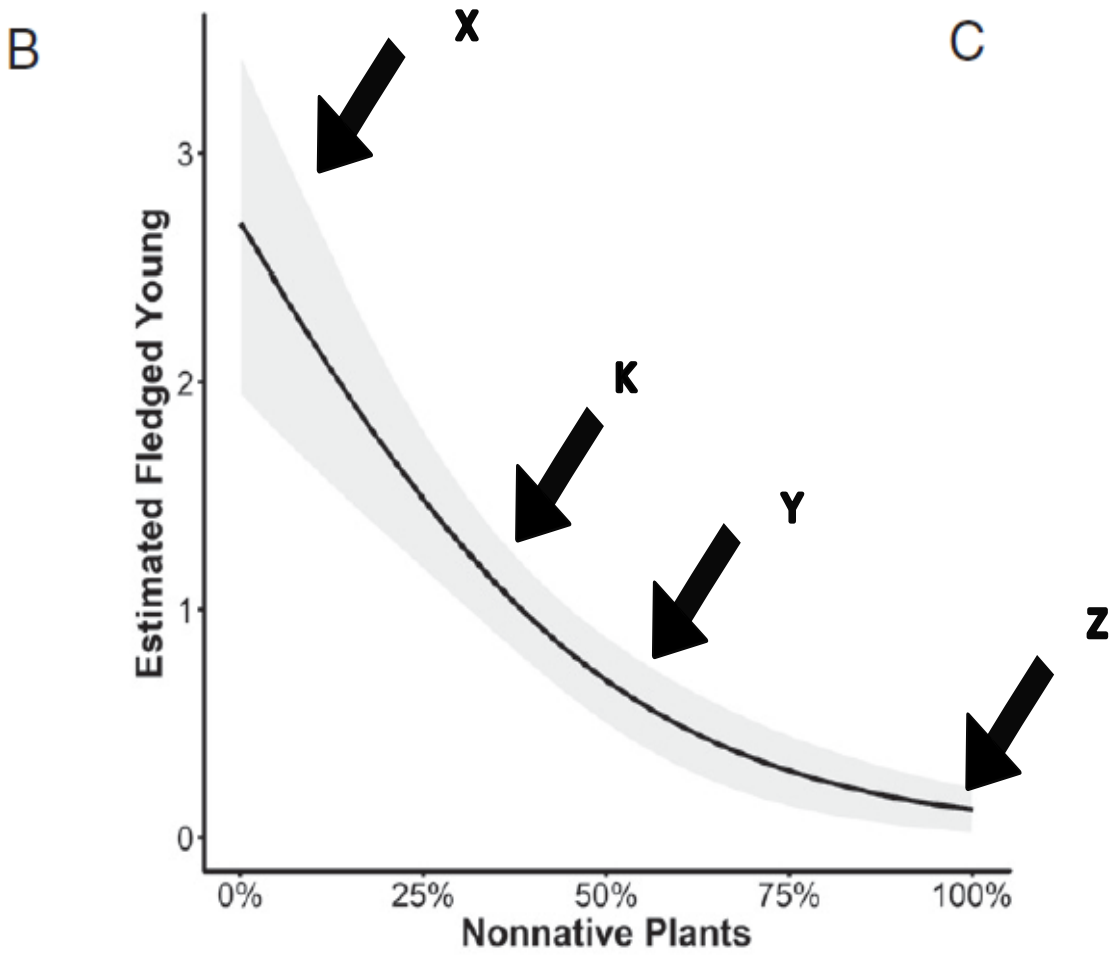
Footnote 1 Nonnative plants reduce population growth of an insectivorous bird. Desirée L. Narango, Douglas W. Tallamy, and Peter P. Marra Proceedings of the National Academy of Sciences. www.pnas.org/cgi/doi/10.1073/pnas.180925911

Footnote 2 Kummer, J. A., and E. M. Bayne. 2015. Bird feeders and their effects on bird-window collisions at residential houses. Avian Conservation and Ecology 10(2):6. http://dx.doi.org/10.5751/ACE-00787-10020

Footnote 3

Explanation of the Use of the Estimate of "2" as the Population Gain Resulting from Increasing the Native Plant Percentage of a Breeding Area.

In an email communication the author recommended that figure 2 B be used to estimate the change in nestling success as a result of increasing the native portion of the yard. It is reproduced below with arrows and notes added. Her study in general found that increasing the native portion of the breeding range to above 70% made it possible for the population to be self-sustaining



Point Z (all exotic) is about 0.3. Y, (50% exotic) is about 0.7, K (30% exotic) is about 1.3 and X (0% exotic) is about 3.

The result can also be expressed instead as moving up the scale toward the 70% level. In this case increasing from the 50% native level to the 70% native level increases the number of fledged young by 0.6, but all the way from 0% native to 100% native is almost 3. **I have used "2" as a working average.**

Footnote 4	Loss et al estimate that the mortality caused by owned cats is 1,053 billion	
	Loss has not issued a per yard cat mortality estimate per residence	
	as he has for window collisions	
	There are 122,000,000 residences	
	owned cats 1,035,000000	1,053,000,000
	households	122,000,000
	Estimate =	8