

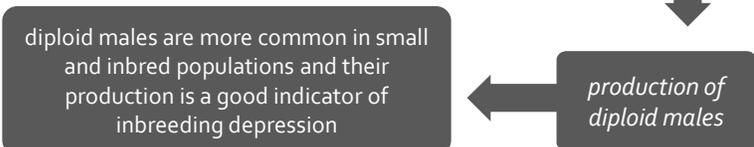
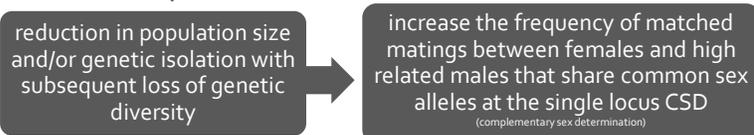
# Diploid male production in a small and isolated population of Brazilian stingless bee *Melipona scutellaris*

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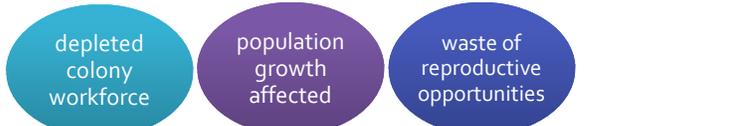
A large number of stingless bee species are crucial vectors for efficient and effective pollination of many important economic crops and natural plants



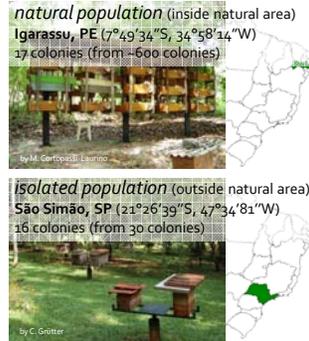
However anthropogenic changes lead to...



**COSTS**  
 Diploid males are considered a **genetic dead end** to their parents, sexual partners, and ultimately to their populations



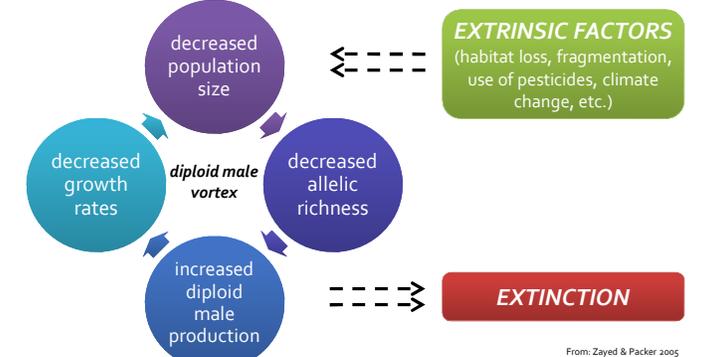
**The aims of this study...**  
 - to evaluate the genetic consequences of prolonged breeding from a small stock of source colonies;  
 - to compare a natural population with an isolated population



10 worker and 10 male pupae were collected from each brood comb  
 pupae genotyped at 3 polymorphic  $\mu$ sat loci: *T4-171*; *Mbi254*; *Mbi201*

Results	Natural population (~600 colonies)	Isolated population (30 colonies; built up from 2 mother colonies)
expected heterozygosities	74%, 64%, 78% (at loci <i>T4-171</i> , <i>Mbi-254</i> , <i>Mbi-201</i> )	51%, 64%, 61% (at loci <i>T4-171</i> , <i>Mbi-254</i> , <i>Mbi-201</i> )
1 out of 17 colonies produced diploid males	(5.88%)	4 out of 16 colonies produced diploid males (25%)
9 out of 165 males were diploid	(5.45%)	21 out of 172 males were diploid (12.21%)
11 sexual alleles (*)		3 sexual alleles (*)

Given that these factors have negative consequences on the population viability, our results point at:  
 - the need of starting with a sufficient number of colonies for prolonged breeding;  
 - the need to occasionally bring in new colonies from elsewhere (but from the natural area of occurrence and, if possible, from the same region)



From: Zayed & Packer 2005