

Why can the fire ant adapt to various environments?

-Effects of hybridization in invasive fire ant populations-



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Abstract

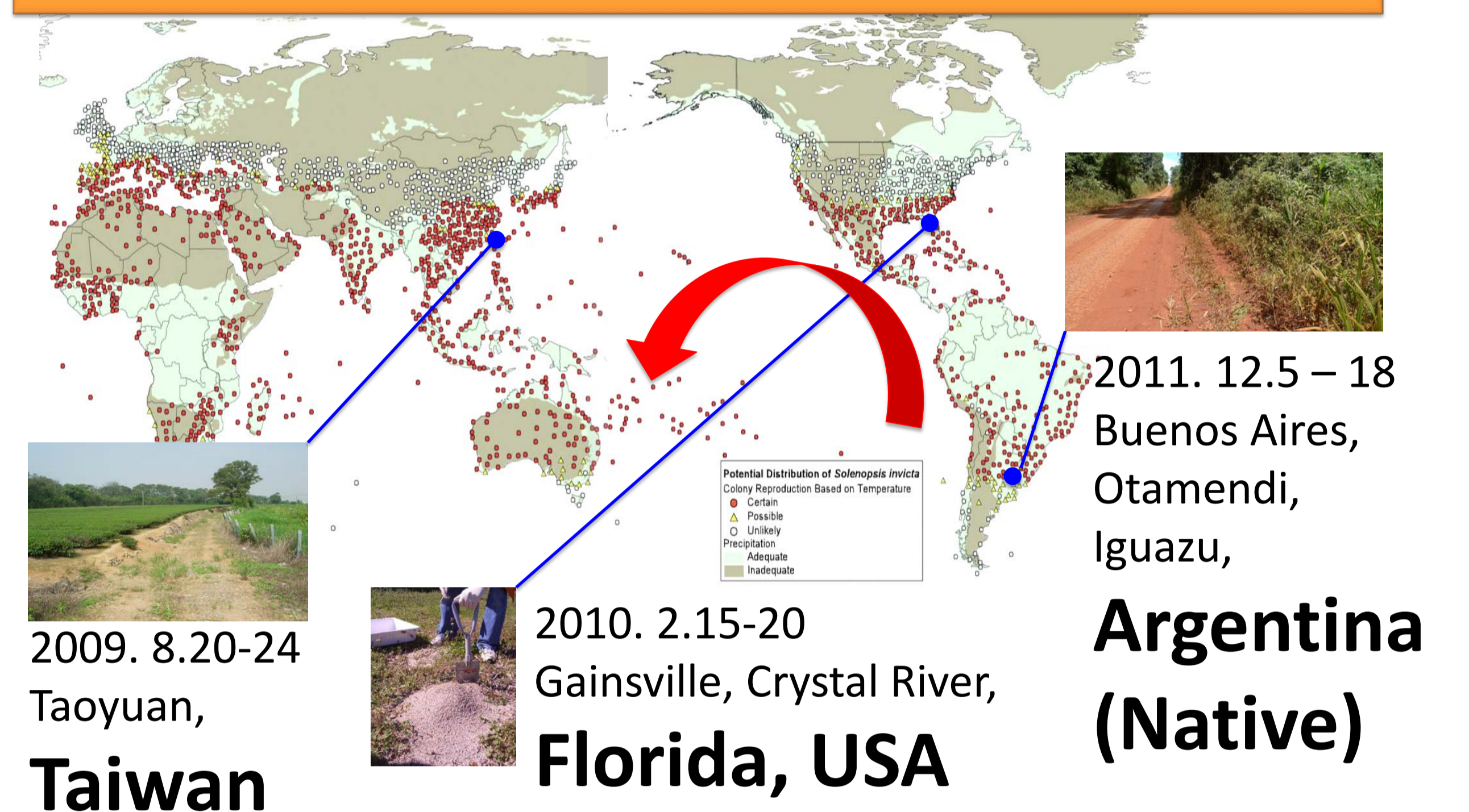
The fire ant *Solenopsis invicta* in invasive ranges had significant differences than native population as follows, (1) chromosomal morphologies, (2) ploidy, (3) Ag-NOR signals, (4) 18S rDNA and telomere FISH signals. Furthermore, the molecular phylogeny revealed a high frequency of introgression. **Possible factors: HYBRIDIZATION among other *Solenopsis* species.**

The most harmful invasive ant, fire ant

- (1) Killed over 100 peoples in USA.
- (2) Economically lost is over 5,000 million dollars in a year.
- (3) Disturb biodiversity and native ecosystems.
- (4) Derived from north Argentina.
- (5) Invaded in Alabama, 1939 .
- (6) Already invaded Australia, China, and Taiwan.

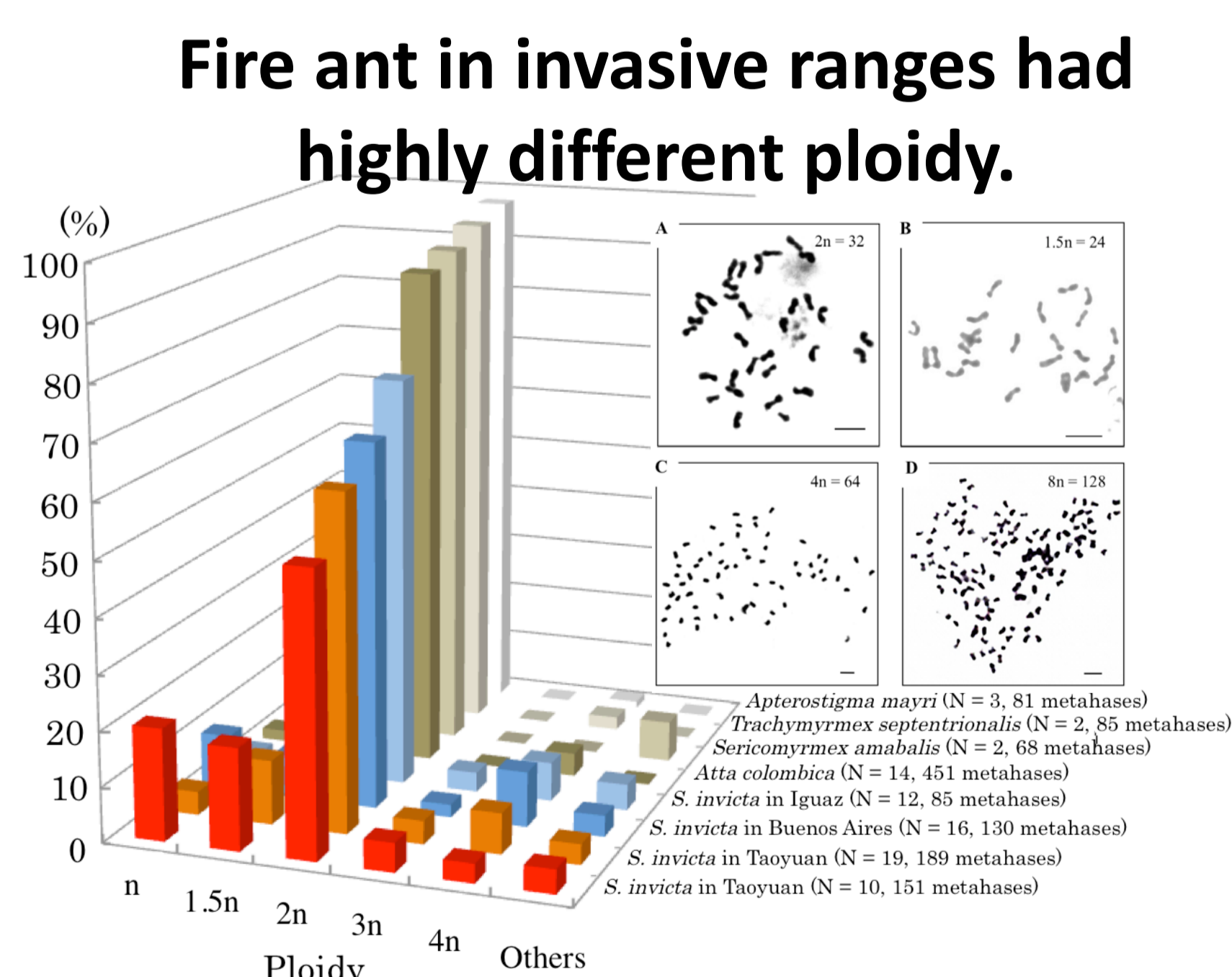
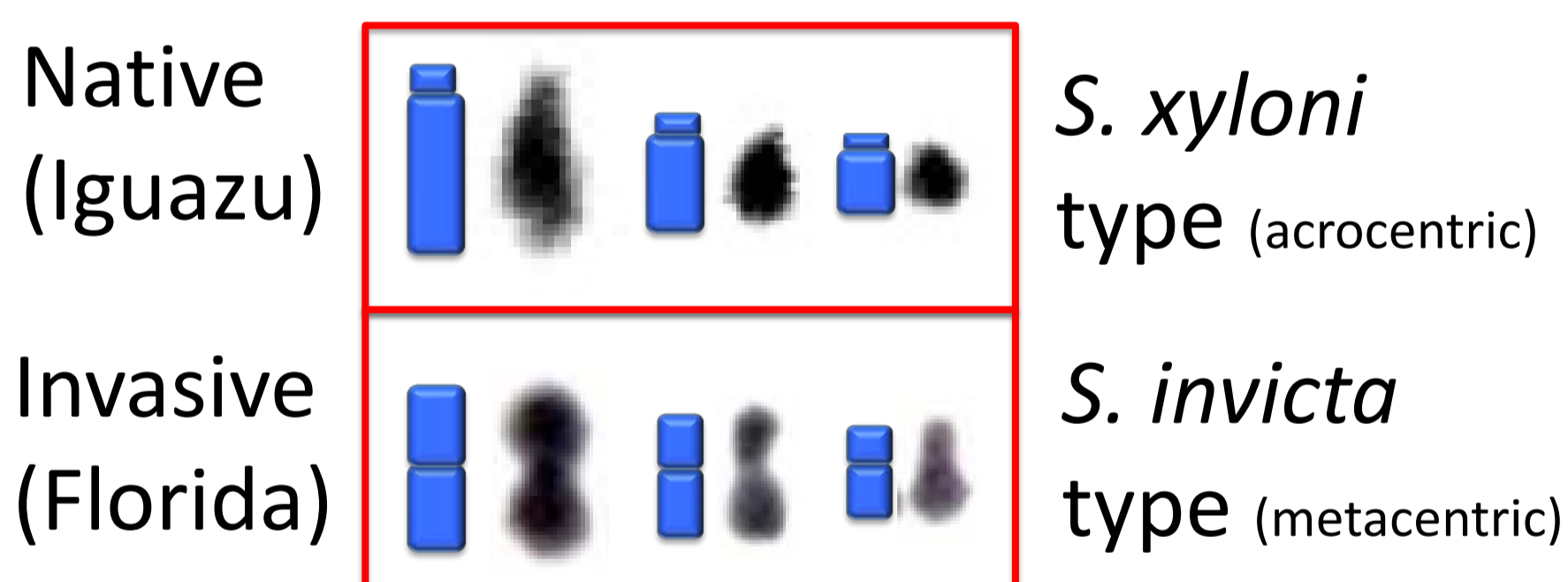


Possible distribution areas and sampling sites



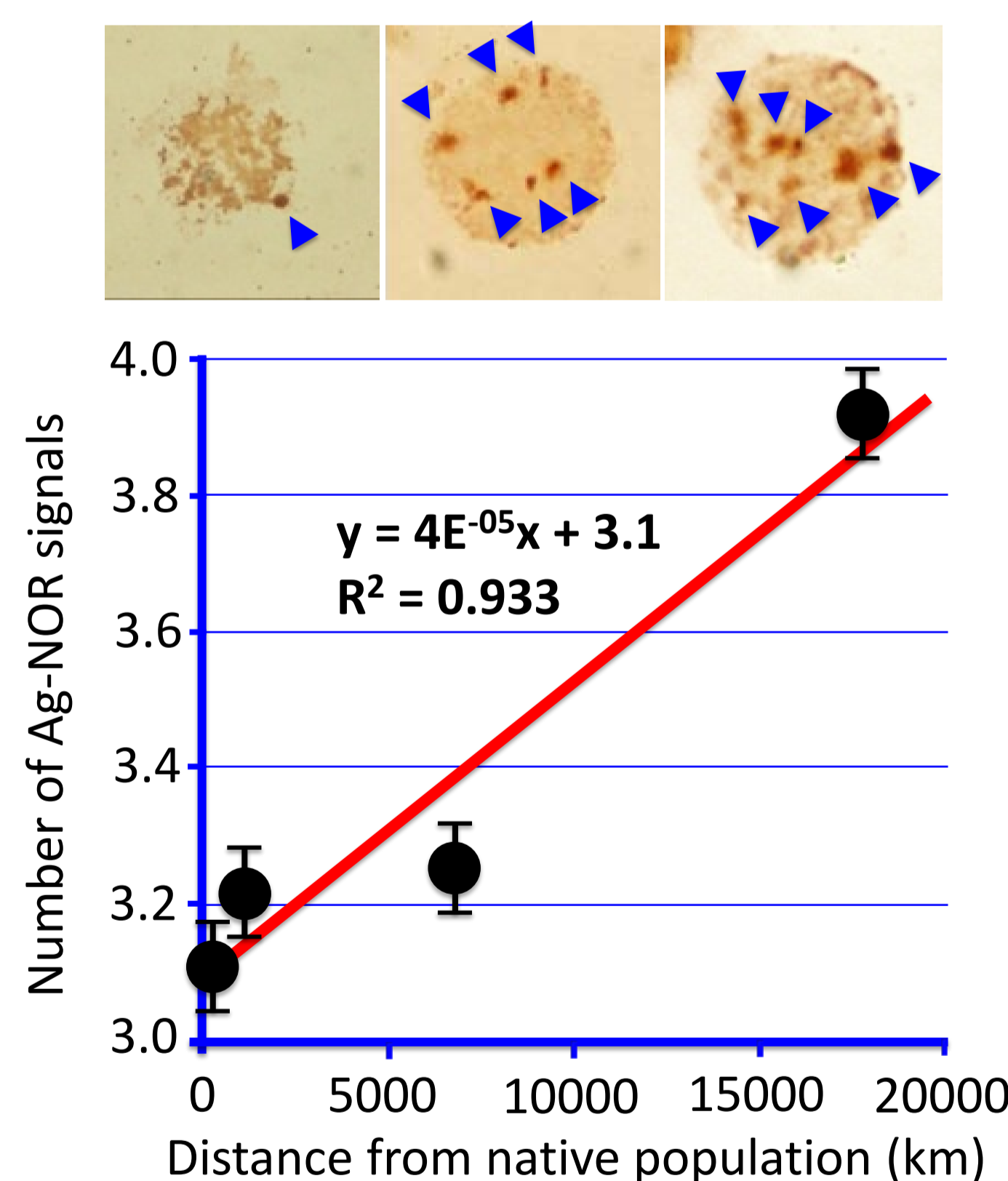
Aims: Comparing cytogenetic and genetic data between invasive and native areas

Karyotypes



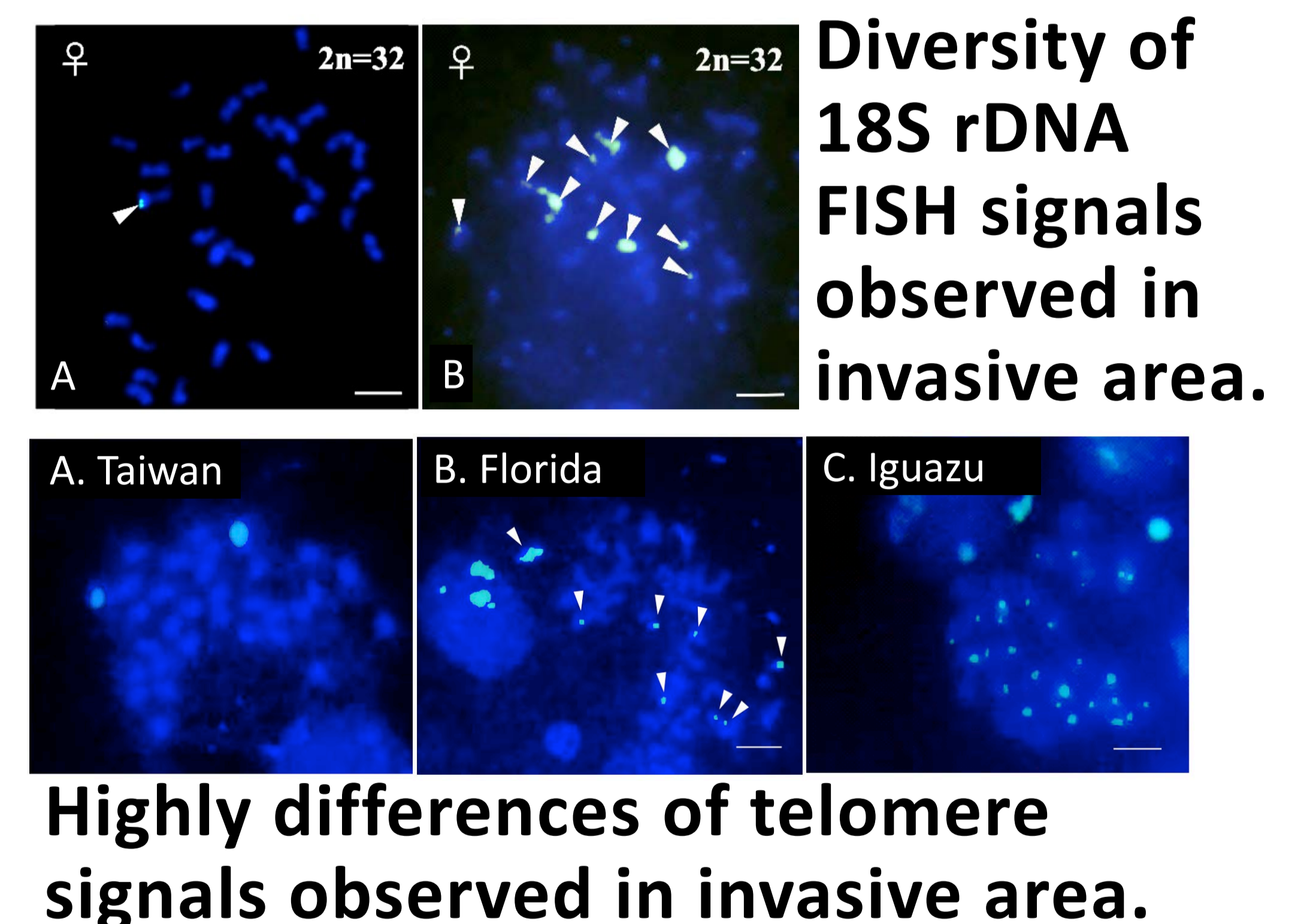
Diversity of chromosome shapes and ploidy suggested that occurred **hybridization**.

Ag-NOR signals

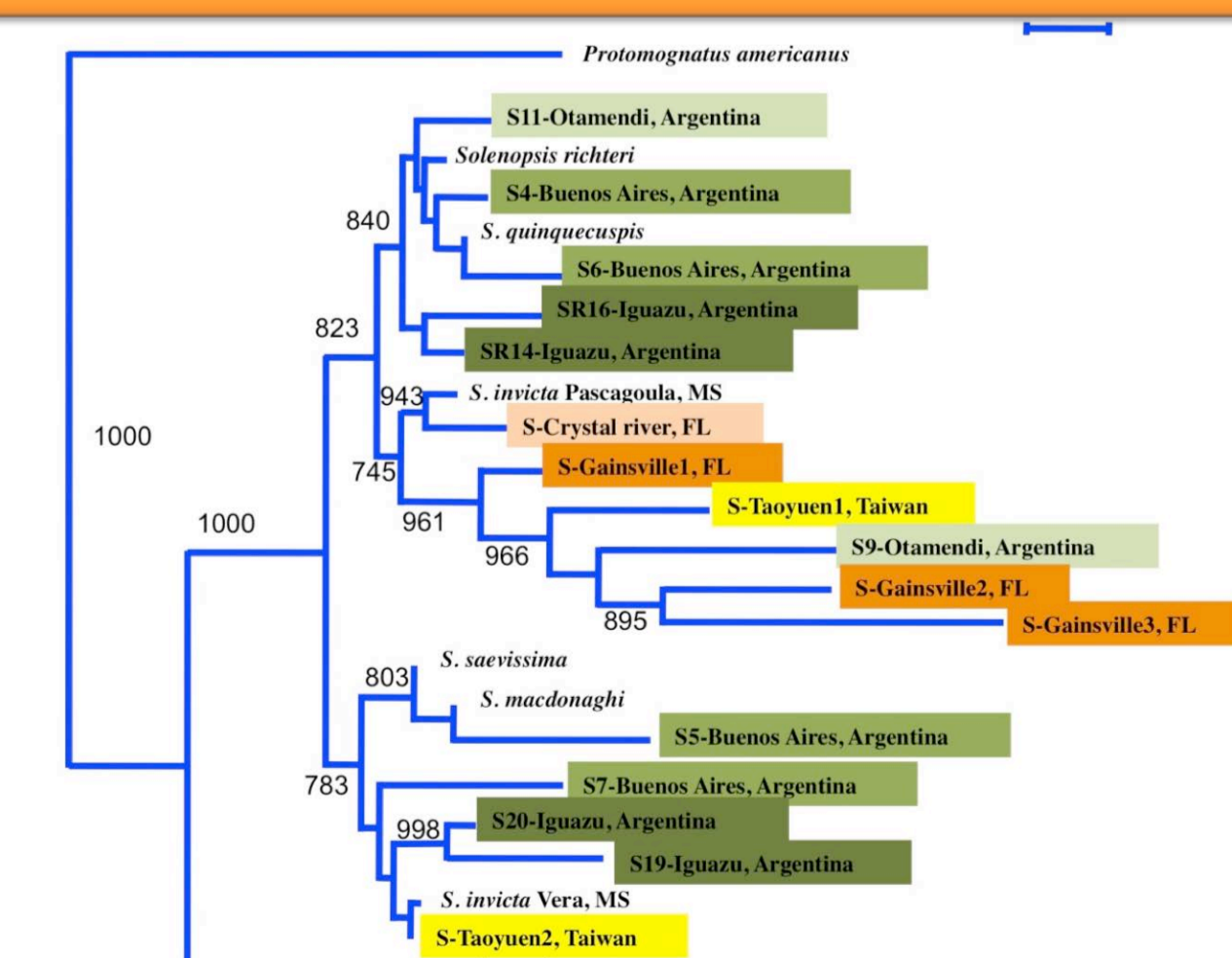


A number of signals will occur in invading ant cells because the cytoplasm may undergo fusion and mixing through **hybridization**.

18S rDNA & Telomere



Molecular phylogeny



Molecular phylogeny suggests that exists the possibility of **hybridization** among related species for evolutionary long time in native areas.

Cytogenetical variations will cause adaptation for different environmental conditions.