

Annotated Bibliography of Papers about Invasives: Plants and Bees

- Barthell, J.F., J.M. Randall, R.W. Thorp, A.M. Wenner. 2001. Promotion of seed set in yellow star-thistle by honey bees: evidence of an invasive mutualism. *Ecological Applications* **11**:1870-1883.
Well, maybe. Intensive experimental design but over a very short time period. Lots of possible confounding factors especially related to impacts of honey bees on native bees not addressed. Good referenced info and great potential for further study.
- Brown, B.J., R.J. Mitchell. 2001. Competition for pollination: effects of pollen of an invasive plant on seed set of a native congener. *Oecologia* **129**:43-49.
See next.
- Brown, B.J., R.J. Mitchell, S.A. Graham. 2002. Competition for pollination between an invasive species (purple loosestrife) and a native congener. *Ecology* **83**:2328-2336.
Two companion studies clearly illustrating the negative effects that invasive species can have on native congeners indirectly through mutualisms (pollination). Solid studies and solid evidence.
- Ghazoul, J., 2002. Flowers at the front line of invasion? *Ecological Entomology* **27**:638-640.
Very interesting "Perspectives" paper on the impacts of non-native plants on insect / plant interactions. Focuses on flower phenology and insect foraging behavior. Not much referenced evidence but a good imagination "sparker."
- Gross, C.L., 2000. The effect of introduced honeybees on native bee visitation and fruit-set in *Dillwynia juniperina* (Fabaceae) in a fragmented ecosystem. *Biological Conservation* **102**:89-95.
Comparative study of honey bee and native bee pollination of a native plant. Basic study design. Semi-anecdotal evidence of negative impacts of honey bees on foraging behavior of native bees.
- Kato, M., A. Shibata, T. Yasui, H. Nagamasu. 1999. Impact of introduced honeybees, *Apis mellifera*, upon native bee communities in the Bonin (Ogasawara) Islands. *Researches on Population Ecology* **41**:217-228.
Nice study design. Proposes anthropogenic disturbance as an important factor in honey bee impacts on native bee populations. Another island study... is it applicable to other systems?
- Kearns, C.A., D.W. Inouye, N.M. Waser. 1998. Endangered mutualisms: The conservation of plant pollinator interactions. *Annual Review of Ecology and Systematics* **29**:83-112.
A must read! An in-depth discussion of pollinator conservation issues. Extensive references.
- Larson, K.C., S.P. Fowler, J.C. Walker. 2002. Lack of pollinators limits fruit set in the exotic *Lonicera japonica*. *American Midland Naturalist* **148**:54-60.
As the title suggests.
- Olesen, J.M., L.I. Eskildsen, S. Venkatasamy. 2002. Invasion of pollination networks on oceanic islands: importance of invader complexes and endemic super generalists. *Diversity and Distributions* **8**:181-192.
Studied the pollination networks (plant x pollinator matrix) on two islands to determine the relationship between native, endemic and non-native plants and pollinators. Also compared their findings to other similar studies on other islands. Found lower interaction levels between introduced species than would be expected by chance, thus, no evidence of invader complexes.

- Parker, I.M., K.A. Haubensak, 2002. Comparative pollinator limitation of two non-native shrubs: do mutualisms influence invasions? *Oecologia* **130**:250-258.
Good discussion of invasive plant ecology and mutualisms. Good study design. No discussion of specific pollinators; a purely plant perspective analysis.
- Richardson, D.M., N. Allsopp, C.M. D'Antonio, S.J. Milton, M. Rejmanek. 2000. Plant invasions- the role of mutualisms. *Biological Reviews of the Cambridge Philosophical Society* **75**:65-93
If you read one paper on this topic, this should be it. Discusses most plant / "other organism" mutualisms. Extensive references.
- Richardson, D.M., P. Pysek, M. Rejmanek, M.G. Barbour, F.D. Panetta, C.J. West. 2000. Naturalization and invasion of alien plants: concepts and definitions. *Diversity and Distributions* **6**:93-107.
An attempt at formalizing and synthesizing the terminology of plant invasion discussions. Great background info and definitions. Analysis of the terminology of most prior invasives literature. The proposed framework seems useful. A must read for discussions sake.
- Roché, C.T., D.C. Thill. 2001. Biology of common crupina and yellow starthistle, two Mediterranean winter annual invaders in western North America. *Weed Science* **49**:439-447.
Not a research article. Good info on life history of two invaders. Good section on the ecological implications of these two species as invaders.
- Roubik, D.W., H. Wolda. 2001. Do competing honey bees matter? Dynamics and abundance of native bees before and after honey bee invasion. *Population Ecology* **43**:53-62.
The ideal long term study of bee populations. Found no long term effects of honey bees on native bee abundances. A great study to replicate if you've got 17 years!
- Schurkens, S., L. Chittka. 2001. The significance of the invasive crucifer species *Bunias orientalis* (Brassicaceae) as a nectar source for central European insects. *Entomologia Generalis* **25**:115-120.
Study on how flower phenology of a non-native plant can impact the local pollinator community. Nice study.
- Spira, T.P. 2001. Plant-pollinator interactions: A threatened mutualism with implications for the ecology and management of rare plants. *Natural Areas Journal* **21**:78-88.
Good overview of native plant conservation. Discusses the role of invasive plants and bees in native plant conservation. A good discussion of pollinator ecology.
- Stout, J.C., A.R. Wells, D. Goulson. 2002. Pollination of the invasive exotic shrub *Lupinus arboreus* (Fabaceae) by introduced bees in Tasmania. **106**:425-434.
Studied the pollination of an invasive leguminous shrub by non-native bees, *Apis mellifera* and *Bombus terrestris*. Found both bee species to provide adequate pollination services and that native pollinators are infrequent visitors. A good study but no major conclusions drawn.
- Wilson, J.B. 1989. Relations between native and exotic plant guilds in the upper Clutha, New Zealand. *Journal of Ecology* **77**:233-235.
In-depth comparison of plant guilds in long term plots. Good discussion on environmental (primarily abiotic) factors of invasibility. No discussion of pollination mutualisms.

Notes: The literature on this topic seems to be growing exponentially. This is obviously a short representative list of what is out there. Many of the authors of these papers have published multiple papers on this topic. The terminology used is historically a bit ambiguous and arbitrary so here is a list of terms that should be used when doing literature searches: alien, non-native, non-indigenous, invasive, invader, naturalized, weed, pest, exotic, introduced, foreign, feral