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## INDOOR PLANT PESTS



There are a few pests associated with indoor plants. While live plants can greatly enhance indoor areas, the pests can be a nuisance. How did the pests get there? Why did they choose *that* plant? And perhaps most importantly, **HOW DO YOU GET RID OF THEM?**

To begin with, be aware that there are a variety of pests that affect indoor plants. Identification is the first critical step in any pest management effort, and indoor plant pests can usually be narrowed down quickly and easily with a little investigation. The culprits may include:

- ✓ Fungus gnats
- ✓ Moth and phorid flies
- ✓ Deck and greenhouse plants (less common indoors)

Indoor plant pests live primarily on the foliage, stem, or flowers, and suck the plant's juices for sustenance. Many of these pests occur during specific times of the year on greenhouse plants or deck plants, and may be a problem indoors secondarily – especially if brought inside during Arizona's hot summer months. Damage to indoor plants ranges from restricted growth and discoloring to wilting and plant death.

Interestingly, the pest that receives the most complaints also does the least amount of damage to indoor plants: **the fungus gnat is by far the most common year-round pest of indoor plants** (families Sciaridae and Mycetophilidae).

Adult fungus gnats live approximately 7-10 days, during which time females deposit eggs in small groupings in the soil. The eggs hatch into larvae (feeding stage), the larvae develop into pupae (metamorphosing stage), and the pupae become adults. The entire developmental process occurs in the soil and takes about a month.

Adult fungus gnats are tiny black, gray, or yellow flies with long legs. They seem mosquito-like, but smaller (1/8"–1/10" long) and more fragile. Generally they tend to run, but will take flight if disturbed from their rest in dark, moist areas around host plants. Dead adults may collect in windowsills.



Fungus gnat larvae are semi-transparent and "thread-like", with a white body, black head, and a length of about 1/4". True to their name, the larvae feed on fungus and decaying plant material in the soil of indoor plants. Larvae may also feed on plant roots, thus stunting the growth of plants or killing seedlings.



Moth flies (Psychodidae) and phorid flies (Phoridae) are commonly mistaken for fungus gnats. These small flies are associated with indoor and outdoor drains, though they can be found around indoor house plants. Moth flies are grey or silver and hold their wings tent-like over their bodies at rest, whereas fungus gnats hold their wings flat. Phorid flies have a hump-backed appearance.



### Pest prevention: HEALTHY indoor plants

Regardless of the type of pest, preventive methods include those required to keep your indoor plants healthy. Healthy plants will be more resistant to pest infestations and will rebound more quickly after treatment. General guidelines include:

1. Choose appropriate plant and container types
2. Pick an ideal location to promote plant health
3. Exercise proper plant care

Proper plant type involves choosing a healthy plant that will thrive in an indoor environment. Plants with shriveled leaves, webbing (from mites), and spotting/dyscoloring should be avoided. Proper moisture levels are important; plastic containers and glazed ceramics are among the least porous materials, while clay pots are the most porous. Also make sure the container has proper drainage (at least one 1/2" hole).

Proper indoor location includes well-suited light and humidity levels (windowsills in Arizona can be dangerous places!). It is also good to keep a new plant isolated for 2-3 weeks to ensure it does not have any pests which could spread to existing indoor plants.

Proper care of indoor plants involves appropriate watering, nutrients (fertilizers), and soil type. **Over-**

**watering is the #1 reason for plant death and also contributes significantly to fungal growth (leading to fungus gnats!).** Too much of a good thing can kill, a concept that also applies to fertilizing. Soil types will vary in their nutrient and drainage levels (many soils come with fertilizers already in them), so study up on what your plant's need. Also consider whether you have the time to invest in the proper care of a particular plant type – it helps to do your homework before buying.

### Fungus gnat control

Continual ingress of flies from lawn and garden areas ensures complete and long term eradication is not realistic or desired. Reducing significant infestations should be the goal. Prevention combined with ongoing monitoring and a combination of the following treatments may help in controlling infestations.

#### Monitoring

Both white and yellow sticky traps/cards are helpful in capturing adults; raw potato slices may attract larvae when placed on top of soil. Sticky traps/cards can be found at your local lawn and garden supply stores and should be placed around the base of the plant.

#### Mechanical methods

Re-pot the plant in sterile soil. Try coupling this with a biocontrol method or reduced-risk pesticide treatment. Follow-up with monitoring (above) to determine whether additional applications of a treatment are necessary.

#### Biocontrol methods - Nematodes and Bacteria

While some types of nematodes are harmful to plants, others (entomopathogenic nematodes - EPNS) are actually beneficial biocontrol agents of plant pests. Beneficial nematodes live in the soil where they encounter their insect host. Once inside a host, nematodes releases bacteria which cause death. *Steinernema feltiae* is one species of EPN that is particularly effective in controlling fungus gnats. They are commercially available as biocontrol agents, and can be found at a variety of sources online.

Applications of a bacterium, *Bacillus thuringiensis* (Bt), show shorter term efficacy in controlling the larvae and may need to be reapplied weekly to manage an infestation (UC Davis).



nematode



**Bt for fungus gnat control is sold as a product called Gnatrol®.**



**Beneficial nematode products include Gnat Patrol, Scanmask, etc**

## Arizona Children's Environmental Health Program



### A new resource for bird management...

PCT Bird Management Field Guide: A Comprehensive Manual for Preventing and Resolving Pest Bird Problems (Paperback). You can find this book for \$12.95 at a variety of online stores.

### Insects out and about...

Odorous house ants are out and about. While they may be a "pest", they sure smell sweet (like coconut or vanilla) when crushed.

Carpenter bees have arrived... those LARGE, heavy-bodied, dark looking bees are really gentle giants; let them do their thing and they're happy to let you do yours!



**Carpenter bee**

Paper wasp (*Polistes*) queens are looking for nest sites – now is the time to keep on top of paper wasp activity. Under eaves and overhangs are common paper wasp nest locations.

### Integrated Pest Management starts with YOU!

IPM involves the whole school community - teachers, kitchen staff, custodians and office staff are an extension of a school district's IPM program. To reduce unnecessary use of pesticides and effectively manage pests, staff should use the pest sighting logs to note any "pesty" observations (insects, mice, etc.). Pest sighting logs are usually located in the main office, teacher's lounge, and kitchen area. Ask your school pest management staff if you don't find them.

#### Information sources:

1. Bennett, Gary W., John M. Owens, and Robert M. Corrigan. *Truman's Scientific Guide to Pest Management Operations*. 6<sup>th</sup> ed. Purdue University, 2003. 574 pp.
2. Fungus Gnat Management. Texas Agricultural Extension Service, Texas A & M University. Website: <http://insects.tamu.edu/extension>.
3. How to Control Indoor Plants Without Toxic Chemicals. Extension Service Garden Hints, Oregon State University.
4. Jeff Schalau. Least-toxic Pest Control for Indoor Plants. University of Arizona Cooperative Extension, Yavapai County.
5. Pests in Gardens and Landscapes. UC IPM Online. Website: <http://www.ipm.ucdavis.edu>.

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Few bugs are bad! More than 95% of all insect species are beneficial to humans