



Ants

O & T Guide [T-#01]

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With over 100 ant species in New Mexico, ants are probably the most familiar and most numerous insects found in turf, ornamental plantings and elsewhere. Only three species of this abundant group of insects will be described here. Harvester and southern fire ants are common in our turf. Red imported fire ant (RIFA) is an invasive, exotic species and a threat to New Mexico agriculture, public health and safety.

Metamorphosis: Complete
Mouth Parts: Chewing (larvae, adults)
Pest Stage: Adults

Scientifically: Ants are members of the insect order Hymenoptera, Family Formicidae.

Typical Life Cycle: Eggs are incubated in the nursery area of the mound, close to the surface where the soil is sun warmed. → Larvae are kept in the nursery area where growing conditions are maintained at optimal levels. All of these stages are tended, fed and protected by worker ants. Mature larvae of some species such as the fire ants are fed solid foods collected by foraging workers; only these larvae can digest solids, regurgitate them, and feed fluids back to the foragers and other colony members. Harvester ant larvae are fed on bits of fungi from fungus gardens maintained below ground by workers in the colony. → The Pupa is also kept in the

nursery below ground in harvester and fire ant colonies. These require 10-14 days to complete development. → During the summer, most adult ants probably complete development from egg to adult in 6-8 weeks during the summer.



Red imported fire ant worker, *Solenopsis invicta*. Photo: April Noble, www.antweb.org, www.forestryimages.org

Ants are social insects living in colonies of several hundred to many thousands of individuals. In its simplest form, a single mated queen produces all of the eggs. Nearly all of these are devoted to production of workers, sterile females responsible for mound digging and maintenance, foraging, defense and care of the queen and nursery. Some ant species may have and tolerate more than one fertile queen per colony; another explanation for this situation is that small colonies are tolerant of each other, forming what appears to be a single large colony. Reproductive or swarmer ants are produced in mature colonies seasonally,

usually after rain events in periods of warmer weather. Dozens to thousands of winged male and female ants may leave a colony during a swarming event. After leaving the parent colony, winged reproductives must find aggregations of their own species and potential mates. Males die fighting over females or soon after mating. Future queens must survive the mating melee and escape to establish, tend and defend a new colony until they raise enough workers to handle all daily colony tasks other than reproduction. Queen ants may live several years, cared for and defended by worker ants in the colony. Worker ants probably survive less than a year.

Egg laying by the queen(s) is temporarily suspended in most outdoor colonies of ants over the winter. Colonies of many species retreat deeper into their underground tunnels and become mostly quiescent at this time.

Description of Life Stages:

Egg: These are minute, white, rounded to elongate and rarely seen.

Larva: Larvae are legless, C-shaped, white, and multi-segmented with poorly defined head capsules. At maturity, larvae of harvester ants may be nearly ¼” long but larvae of most other species including the fire ants will be much smaller.

Pupa: The pupa is an intermediate stage in which dramatic changes in appearance and physiology occur between the larva and adult. The actual pupa is contained in an off-white, elongate oval cocoon commonly seen when ant mounds are disturbed; what many people think are eggs being carried to safety by worker ants are actually the much larger pupae. The actual pupa

closely resembles the adult ant in size and appearance only the exterior body parts are white and mostly immobile. External wing buds are visible externally only on future swarmers (future reproductive ants).

Adults: The adult worker will have a well-defined head, thorax and abdomen. Chewing jaws and prominent, elbow-shaped antennae are primary features of the head; most but not all species have a pair of compound eyes. Three pairs of elongated, slender legs are attached to the thorax. The shape of the thorax as well as shape and location of thoracic spines (if any) are helpful for identification. The slender connection between thorax and abdomen may have one or two segments, another feature used in identification as well as presence or absence of a stinger. For some species, a circlet of small “hairs” around the anus is useful in identification, also. Worker ants in some species are approximately the same size; in others (e.g. fire ants), worker ants vary considerably in size.

Workers of just two of the common ant species in turf are described as follows:

1) Fire ants: The common, native southern fire ant, *S. xyloni*, is ubiquitous in urban and suburban areas across all of the southern U.S. While it can be an aggressive forager and sting repeatedly, its exotic relative (apparently from Brazil), the red imported fire ant (RIFA), *S. invicta*, is even more so. Widespread in the southeastern and south central U.S., RIFA, is a good hitchhiker on commercial trucks and cargoes. It has been found in isolated instances in New Mexico. Presently, only Dona Aña County is under federal quarantine for this pest. This situation requires licensed nurserymen and turf growers to treat their plants with approved

insecticides and take extra security precautions in their growing and shipping areas prior to sending outside the regulated area. Worker fire ants of both species have two-segmented petioles, prominent stingers, no spines on the thorax, and 10-segmented antennae ending in a gradually swollen, 2-segmented club. Other subtle, mostly microscopic features are useful for distinguishing *invicta* from other *xyloni*; more recently, DNA analysis has been used to separate the species in critical identifications.



Red imported fire ant, *Solenopsis invicta*, from egg to larva to pupa to adult. Photo: USDA APHIS PPQ Archives, USDA Animal and Plant Health Inspection Service, www.forestryimages.org



Harvester ants: all workers are nearly ¼” long. Depending upon species group, all ants in a mound are either all red or red and black. All workers have a pair of prominent short spines on the upper rear part of the thorax, a 2-segmented pedicel between thorax and abdomen, a well

developed stinger and a “beard” of colorless “hairs” on the underside of the head. Shaped like low pitcher’s mounds, some harvester ant nests are up to six feet across and eight feet or more deep. Workers keep the mounds free of plants but generally covered with fine gravel that aids in regulating temperature in the nursery. These ants are native to the Southwest.



Harvester ant workers, *Pogonomyrmex* sp. Photo: H. A. "Joe" Pase III, Texas Forest Service, www.forestryimages.org

Habitat and Hosts: Ants will invade any sunny, well-drained turfgrass area as well as planting areas for ornamentals, including nurseries and greenhouses. Ants will also invade non-crop areas, rights-of-way, roadsides, farm fields, and buildings, searching for food, moisture and shelter. Foraging trails may extend many feet from the mound. Severe disturbance of some ant mounds may prompt the ants to move their colonies or construct new tunnels and entry points near the surface.

Damage: Ant tunneling and nesting can disturb turf roots and increase water loss from soil. Turf stands can thin, allowing weeds to compete. Foraging trails may become well worn and visible. Unattractive, ever-growing mounds can make lumpy areas in turf, affecting quality, appearance and some recreational uses. Large mounds can damage mower blades particularly when ants are

swarming and they make their mounds even higher with debris or clay soils. Some species (especially the fire ants) are well known for the vicious bites and stings which they can deliver repeatedly. While painful and annoying, ant venom also can trigger acute and life-threatening allergic reactions (anaphylactic reactions) in sensitive people.

IPM Notes: Ants are best controlled by treating the mounds and killing the queen(s); treating foraging ants provides very short term relief in most cases.

Insecticidal drenches, granules or selected baits containing insect growth regulators (IGRs) are effective as well as broadcast treatments with certain baits. Remove food or shelters favored by ants. Controlling aphids, scales, whiteflies or other honeydew producing insects on ornamentals can be helpful as well as replacing landscape plants prone to these infestations with species not similarly affected by these pests.