University of Idaho Extension

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Tuxedo Bug

A New Home-Invading Insect in Idaho

by Edward John Bechinski and Frank Merickel

The tuxedo bug, *Raglius alboacuminatus*, is becoming a significant nuisance pest insect in some areas of Idaho. Massive numbers move into residential landscapes, particularly during the fall, where they inadvertently enter homes. Although tuxedo bugs essentially are harmless, sheer numbers make them an intolerable pest.

This publication will help you identify the tuxedo bug and understand why these pests are present inside your home. Recommendations for control are provided, including advice about insecticide use and alternatives to chemicals.

Background

The tuxedo bug, a non-native insect widely distributed in Europe, northern Africa, and western Asia, has accidentally established in our area. Scientists first detected this insect in North America in Utah in 1999. No one knows for sure how it arrived in the United States. The tuxedo bug subsequently was detected in California and Oregon in 2002.

Entomologists collected the first specimens in Idaho in 2004, when significant problems occurred inside residences in the Boise area (Ada County). In addition, *Raglius* has since been collected in Idaho, Kootenai, Latah, and Nez Perce counties. Washington state first reported these insects in 2005.

Identification

Raglius alboacuminatus (pronounced RĂGG-lee-us ăhl-bō-ăh-cūm-inn-A-tŭss) does not have an officially approved common name. We call *Raglius* the tuxedo bug for the attractive white-on-black appearance of the adult bug. The insect develops through three life stages—egg, nymph, and adult—but almost always is encountered as an adult insect.

Adult body shape is narrow and elongate, about one-quarter-inch long, having a pair of easy-to-see antennae pointing forward from the head. Overall body color is dark gray to black, often blending into a dark mahogany brown band about midway across the body; a black triangle outlined in white overlays this brown band (Figure 1). A pair of pale white spots at the edge of the body, below the white-marked triangle, and a third pale spot at the tip of the body give adult tuxedo bugs their stylish appearance.

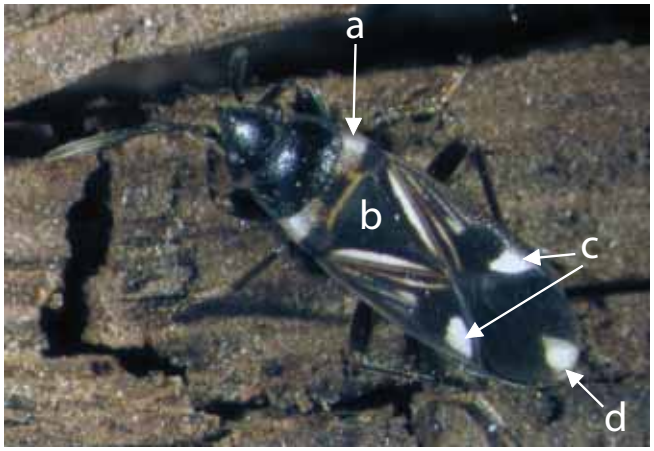

Figure 1. Adult tuxedo bugs are slender, elongate insects about one-quarter-inch long. Overall body color is black with distinctive white stripes and spots. Diagnostic markings include (a) pale stripe across thorax behind the head, (b) black triangle outlined in white (usually over the top of a dark mahogany brown band), (c) paired white spots along the sides of the body, and a (d) single spot at the tip of the body.

Technically, all bugs are insects but not all insects are bugs. True bugs are those insects having mouthparts prolonged into a single sucking tube, and wings that cross flat over their back in an "x" pattern. People often mistake true bugs for beetles, but beetles fold their wings in straight line down their back rather than tucked x-pattern one under the other.

Several other species of true bugs commonly invade Idaho homes during the fall in search of protected overwintering sites. These species either are several times bigger than *Raglius* or are uniformly colored tan-brown without having the distinctive marks of the tuxedo bug.

Biology

Host plants

Relatively few details are known about the biology of tuxedo bugs in the U.S. In Europe, *Raglius* primarily feeds on seeds of plants in the mint family. It especially feeds on a plant named black horehound, *Ballota nigra*, which is not known to occur in Idaho.

In Russia, *Raglius* is found near mint plants in the scientific genus *Stachys*. Among the *Stachys* plants known from Idaho is lamb's ears (*Stachys byzantina*), an ornamental homeowners plant in flower gardens. Lamb's ears in home flower gardens might be a source of tuxedo bugs around Idaho residences. Note: *Stachys* lamb's ears is not related to lambsquarters, a common weed in home vegetable gardens.

Raglius also is associated in Russia with plants in the figwort family (Family Scrophulariaceae), particularly white mullein, *Verbascum lychnitis*. White mullein is not known from Idaho, but several related species, such as *Verbascum thapsus* (common mullein), are common roadside weeds.

European studies report the insect mainly eats mature seeds that have fallen to the ground. It also crawls on plants and feeds on developing seeds.

Seasonal cycle

Adult bugs are active outdoors in Idaho twice a year: first during a few weeks in early to mid-spring and then for an extended period beginning mid-summer and ending late-fall. We are uncertain about the number of seasonal generations. Our limited observations suggest the insect develops through a single generation each year in Idaho. In contrast, *Raglius* has two generations yearly in England and three in Russia.

Like many true bugs, the tuxedo bug survives the winter as an adult in protected places. Natural overwintering sites include cracks and crevices on tree trunks and plant debris on the soil surface. It also readily overwinters in buildings (homes, garages, barns, storage sheds, grain bins) located next to weedy lands supporting mixed vegetation where immature nymphs fed during the summer.

Idaho beekeepers have reported *Raglius* overwinters under the outer cover of hives. These bugs pose no threat to honey bees.

Adult bugs that overwinter outside become active as soon as temperatures warm in the spring. Activity in northern Idaho begins as early as late March and continues for several weeks until egg laying ends and adults die. Adults lay eggs on the soil surface. Nymphs emerging from eggs feed on seeds through mid- to late summer, developing into adults as early as mid-July.

Adult bugs remain active outside through early November until cold temperatures end seasonal activity for the year. These adult insects especially become pests when they move into houses in search of overwintering sites.

Pest status

Tuxedo bugs around home landscapes or inside residential buildings pose no threat of injury to plants, pets, people, or structures. *Raglius* is a seed-feeding insect that only seems to feed on certain weedy plants. It does not bite, sting or stain. Unlike other types of true bugs, *Raglius* does not emit offensive odors. When crushed, their bodies do emit a slightly offensive scent.

The little known about *Raglius* suggests it will not become an important pest of commercial agronomic crops.

Large populations of tuxedo bugs pose an intolerable presence inside home living spaces and outdoors around home landscapes. The primary periods of nuisance activity outdoors are early spring (March and April) when adults leave their overwintering sites, and mid-summer through fall (August through October) when nymphs develop into adult bugs.

Figure 2. Residential sites in Idaho where tuxedo bugs moved from weedy fields into adjacent home landscapes. Homes and other residential structures located next to abandoned crop lands (left), unmanaged pastures (right), and similar large, weedy acreages where immature nymphs developed can experience heavy infestations lasting for weeks.

Raglius bugs often originate from lands not managed by the person experiencing the nuisance invasion, one of the most frustrating aspects of this pest. The worst problems develop at home sites immediately adjacent to large weedy acreages, particularly abandoned crop lands, unmanaged pastures, and undeveloped building lots (Figure 2). Immature nymphs develop in those areas but go unnoticed until their weedy host plants die and adult bugs subsequently move into surrounding green home landscapes.

Homes distant from nymphal habitats do not necessarily escape adult tuxedo bug infestations. Adult bugs are highly mobile and disperse widely during the fall. We have observed bugs at residential landscapes more than one-half mile from the nearest likely nymphal habitat.

Bug presence around home landscapes and inside buildings is purely accidental—adult tuxedo bugs inadvertently wander into yards and buildings. Adult bugs have wings and probably can fly. They typically are seen running with quick, short, darting movements resembling those of fast-running ants or small spiders.

Freezing temperatures end movement of overwintering bugs into buildings. Overwintering bugs do not reproduce inside structures. If trapped inside buildings, adult bugs eventually die. Once present inside heated structures, however, *Raglius* remains active throughout the winter months. Homeowners report insects periodically crawling around kitchens and sunny windowsills during January and February. Bugs sometimes fall into sinks and tubs where they die when they cannot climb the slippery walls. They also crawl inside kitchen cupboards but do not feed on any stored foods.

Pest management

Raglius causes most concern when adult bugs enter homes during the fall in search of overwintering sites. Homes located next to old, weedy fields that are sources of tuxedo bugs can experience heavy infestations lasting for weeks. Although the best control strategy would be to eliminate weedy host plants before nymphs develop into the highly mobile adult stage, that option typically is beyond the capability of an individual homeowner. Pest management for homeowners begins with pest exclusion tactics. It often requires outdoor barrier sprays of insecticides along the exterior foundations of buildings to prevent bug movement into homes.

Exclusion and physical removal

The flattened body shape of *Raglius* and its natural propensity for crawling into tight crevices allows massive numbers to enter home living spaces. Do whatever you can to bug-proof buildings. Caulk around windows and add weatherstripping around door thresholds to keep bugs from entering homes. Cracks along poorly fitting sliding patio doors provide easy entry into homes. Even tightly constructed homes experience tuxedo bugs entering through vents under eaves and in attics. Cover vents with fine-mesh screening to exclude bugs.

Vacuum bugs that enter homes. Shop vacuums especially are well suited for physically removing living bugs both inside buildings and outdoors. Throw out the vacuum contents inside a zippered plastic bag to prevent any surviving bugs from escaping.

Insecticides as outdoor barrier treatments

Raglius often run along the outside foundation of buildings and crawl up exterior walls. By treating those areas with an appropriate insecticide, you can create an effective but limited chemical barrier that kills tuxedo bugs before they enter homes (Figure 3). You can hire a professional to apply insecticides or apply commercially available products for homeowners yourself.

No insecticides specifically list *Raglius alboacuminatus* or tuxedo bugs on the pesticide label. Normally it is University of Idaho policy not to recommend use of any pesticide unless both the application site and the pest are listed on the pesticide label. However, federal pesticide laws say it is legal to use pesticides for pests not named on the label when the application site is listed. This means any insecticide labeled for exterior treatment of home foundations to control nuisance crawling insects legally may be used for tuxedo bugs.

Table 1 lists insecticides we recommend as outdoor perimeter sprays on and around residential buildings for tuxedo bugs. Each states it can be used to control a related nuisance crawling insect, the boxelder bug. The boxelder bug is another true bug that, like *Raglius*, also congregates along home foundations during the fall. Note: a single insect-killing "active ingredient" almost always is sold under several different trade names. Table 1 lists the trade names of products widely available in Idaho.

Figure 3. Tuxedo bugs killed by insecticide applied to exterior home foundation and lower walls.

Table 1. Insecticides recommended for control of tuxedo bugs as OUTDOOR SPRAYS on foundations of homes, around doors, windows, and eaves, and on the soil next to building foundations.

Active Ingredient	Commercially available products for homeowners	Application Type	Signal Word
beta-cyfluthrin	*Bayer Advanced Home Pest Control Indoor & Outdoor Insect Killer*	trigger-pump	Caution
	Bayer Advanced Carpenter Ant & Termite Killer Plus Concentrate	requires mixing	Caution
	Bayer Advanced Home Power Force Carpenter Ant & Termite Killer Plus Concentrate	requires mixing	Caution
	Bayer Advanced Power Force Carpenter Ant & Termite Killer Plus Concentrate	requires mixing	Caution
bifenthrin	*Bifen HG Home & Perimeter Insecticide*	trigger-pump	Caution
	Ortho Ortho-Klor Termite & Carpenter Ant Killer Concentrate	requires mixing	Caution
	Ortho Ready-to-Use HomeDefense Indoor & Outdoor Insect Killer[5]	power-sprayer	Caution
	Ortho Termite & Carpenter Ant Killer Concentrate	requires mixing	Caution
carbaryl	*Bayer Advanced Complete Insect Killer for Gardens Ready-to-Use*	power-sprayer	Caution
cyfluthrin	*Ace Home Insect Control*[4]	trigger-pump	Caution
	Bayer Advanced Garden Power Force Multi-Insect Killer Ready-to-Use	trigger-pump	Caution
	Green Thumb Ready-to-Use Home Insect Killer[3]	trigger-pump	Caution
	Real-Kill Home Insect Control Indoor & Outdoor Insect Killer	trigger-pump	Caution
	Schultz Lawn & Garden Insect Killer Concentrate	requires mixing	Caution

Table 1. ***Cont'd***

Active Ingredient	Commercially available products for homeowners	Application Type	Signal Word
deltamethrin	*Enforcer BugMax365 One Year Home Pest Control*	trigger-pump	Caution
	Enforcer BugMax Insect Killer Concentrate	requires mixing	Caution
	Enforcer Home Pest Control XII	trigger-pump	Caution
	Green Light Roach Ant & Spider Control	trigger-pump	Caution
	Hi-Yield Kill-a-Bug II Indoor-Outdoor Spray	trigger-pump	Caution
deltamethrin + bioallethrin	*Pro Exterminator Residual Crawling Insect Killer Plus*	aerosol	Caution
esfenvalerate	*Bonide House Guard Ready-to-Spray Perimeter & Foundation Insect Control*	hose-end	Caution
gamma-cyhalothrin	*Spectracide Triazicide Once & Done! Insect Killer$_2$ Concentrate*	requires mixing	Caution
lambda-cyhalothrin	*Hot Shot Home Insect Control Clear Formula$_2$*	trigger-pump	Caution
	Martin's Cyonara Lawn & Garden Insect Control	requires mixing	Caution
	No-Pest Home Insect Control$_4$	trigger-pump	Caution
	Schultz Ready-to-Use Home Insect Killer$_2$	trigger-pump	Caution
	Spectracide Ant Shield Home Barrier Insect Killer$_1$	trigger-pump	Caution
	Spectracide Bug Stop Home Insect Killer	power-sprayer	Caution
	Spectracide Bug Stop Indoor Plus Outdoor Insect Killer	trigger-pump	Caution
	Spectracide Flea & Tick Killer$_3$	power-sprayer	Caution
	Spectracide Terminate Termite & Carpenter Ant Killer$_2$	power-sprayer	Caution
	Spectracide Triazicide Lawn & Garden Insect Killer	trigger-pump	Caution
	Spectracide Triazicide Once & Done! Insect Killer	trigger-pump	Caution
	Spectracide Triazicide Soil & Turf Insect Killer Concentrate	requires mixing	Caution
malathion	*Ace Dilutable Concentrate Malathion 50 Insect Spray*	requires mixing	Warning
	Green Thumb Malathion Insect Killer Spray Concentrate	requires mixing	Warning
	Ortho Malathion 50 Plus Insect Spray Concentrate	requires mixing	Warning
	Ortho Malathion Plus Insect Spray Concentrate	requires mixing	Warning
	Ortho Mosquito B Gon Tree & Shrub Spray Concentrate	requires mixing	Warning
	Schultz Malathion Concentrate	requires mixing	Warning
	Spectracide Malathion Insect Spray Concentrate	requires mixing	Warning
permethrin	*Ace Soil & Turf Insect Control Concentrate*	requires mixing	Caution
	Bee Gone Insecticide Concentrate	requires mixing	Caution
	Hi-Yield 38 Plus Turf, Termite & Ornamental Insect Control	requires mixing	Caution
	Spectracide Bug Stop Garden & Lawn Insect Control Concentrate	requires mixing	Caution
	Terro Termite & Carpenter Ant Killer Concentrate	hose-end	Caution
permethrin + tetramethrin	*Zero In Roach & Ant Killer Ready to Use Liquid*	trigger-pump	Caution

NOTES:

None of these insecticides specifically is registered for tuxedo bugs, but all are labeled as residential foundation and perimeter sprays for related home-invading insect, the boxelder bug, and should be effective against tuxedo bugs. Products are listed alphabetically, not by order of implied effectiveness. ALWAYS READ AND EXACTLY FOLLOW THE PRODUCT LABEL. Information here does not substitute or replace instructions printed on the label. The relative hazards of any pesticide to human health can be judged by the signal words CAUTION, WARNING, DANGER, OR DANGER-POISON printed on the pesticide label, where

CAUTION = slightly acutely toxic if ingested, inhaled, or by skin contact OR with slight potential for eye and skin irritation;

WARNING = moderately acutely toxic to humans if ingested, inhaled, or by skin contact OR with moderate potential for eye and skin irritation;

DANGER (without the accompanying word POISON) = corrosive pesticides that can permanently blind or cause severe skin injury;

DANGER-POISON = pesticides that EITHER are highly acutely toxic if ingested, inhaled, or by skin contact OR pesticides that pose significant risks to wildlife or the environment; products labeled DANGER-POISON only can be used by certified (state-licensed) pesticide applicators, not homeowners.

A single spray of any one of these products should provide immediate bug control against invading tuxedo bugs, lasting 10-14 days if not longer. The only exceptions are products that contain malathion, which likely will provide shorter residual killing action.

It is not necessary to spray every time you see bug activity; insects will contact a lethal dose from the chemical residues that remain after the spray has dried. Pre-mixed, ready-to-use liquid sprays packaged in trigger-pump containers, hose-end sprayers, or self-contained battery-powered sprayers not only are convenient but also reduce potential health hazards to you during spray application by minimizing accidental contact with concentrated insecticides. Concentrates often are more cost-effective than ready-to-use sprays for treating large areas.

Unless otherwise directed by the label, spray a three-foot-wide continuous band of insecticide on the soil outside around the building foundation, continuing upwards onto the exterior foundation another two or three feet. Spray around doors, windows, utility line entrances, vents, and other openings through exterior walls where bugs can enter buildings. Read the label for any precautions about staining of exterior siding.

The tuxedo bug does not congregate in any particular place but instead ranges across the entire landscape. It is neither necessary nor desirable to spray entire landscapes. Broad-scale application of insecticide to the entire yard potentially exposes your family and pets to hazardous pesticide residues. These residues also can be highly disruptive to backyard wildlife and beneficial insects, such as pollinating bees, lady beetles, and other natural biological control agents.

Insecticides inside residential buildings

Except for extreme tuxedo bug infestations, we recommend against the use of insecticides inside home living spaces. The pest is too mobile and too secretive for effective, judicious insecticide use inside the home. Bug-bomb aerosols are ineffective for tuxedo bugs inside the home. While these products can kill exposed bugs, insects hidden in crevices or that invade after the insecticide disperses continue to be a nuisance. It is more effective to apply exterior perimeter sprays to prevent bug entrance in the first place.

Frequently asked questions

We never saw tuxedo bugs until this past fall. Now the outside of our house is black with so many crawling bugs that I'm embarrassed to have guests over. What am I doing wrong?

Nothing. The tuxedo bug is an exotic European species that wasn't known in Idaho until 2004. It disperses from old weedy fields during the fall in search of protected places to survive the winter. Most likely your home simply is located close to bug habitat.

Is it true that tuxedo bugs deliberately were imported to eat noxious weeds?

No. Bugs likely arrived as accidental hitch-hikers within shipments from overseas countries where *Raglius* naturally occurs. Prior to its 1999 establishment in Utah, the bug had been intercepted 22 times in international commerce by inspectors at U.S. ports of entry.

Did tuxedo bugs enter my home through the plumbing? I keep finding bugs crawling around in my sinks.

Absolutely not. Bugs sometimes fall into sinks but cannot crawl back up the slippery sides. This makes it look as though they came up from the drain, but they cannot enter homes that way.

Do tuxedo bugs live inside furnace ducts? I keep sweeping up dead bugs around floor vent registers.

Here again, tuxedo bugs crawl just about everywhere, sometimes falling into ducts where they die. Tuxedo bugs do not really "live" any place inside your home, at least in the sense of establishing permanent populations. Tuxedo bugs never reproduce indoors. Once inside, they are doomed to die.

Tuxedo bugs are crawling around in my kitchen cupboards. Do they eat cereal products and other stored foods?

Tuxedo bugs are not pantry pests like the small beetles and moths sometimes seen in kitchens. They only feed on the mature seeds of certain plants in the mint family and perhaps a few others. Except for their nuisance presence, tuxedo bugs pose no other pest threat.

Do tuxedo bugs come from pine trees?

No. The craggy bark of Ponderosa pine and other landscape trees is just one of the places where adult bugs seek overwintering sites, not a food source.

Are there any natural least-toxic insecticides that can be used against tuxedo bugs? I really hate to use chemical sprays around my home.

Insecticidal soaps are an option, but these only kill insects on contact with the wet spray. Once the spray dries, there is no residual killing action. One would have to directly spray every insect present whenever they occur. Insecticides that contain pyrethrin (a natural insect-killing chemical from plants) are another option, but these, too, rapidly break down and deactivate in less than a day; repeated applications would be necessary.

Will overwintering tuxedo bugs feed on stored seeds in farm bins?

Chances seem slim to none. *Raglius* is genetically programmed to pass the winter in a state of non-feeding, inactive hibernation. Seeds stored under unheated conditions are absolutely protected because bugs are not active when temperatures are too cold.

What's the long-term outlook for tuxedo bugs as pests in Idaho?

We really don't know. In Utah (where the bug first was detected in the U.S.), infestation levels declined to virtually non-detectable levels two years after the initial detection, but subsequently returned to levels as high as had ever been seen there.

ALWAYS read and follow the instructions printed on the pesticide label. The pesticide recommendations in this UI publication do not substitute for instructions on the label. Due to constantly changing pesticide laws and labels, some pesticides may have been cancelled or had certain uses prohibited. Use pesticides with care. Do not use a pesticide unless both the pest and the plant, animal, or other application site are specifically listed on the label. Store pesticides in their original containers and keep them out of the reach of children, pets, and livestock. Trade names are used to simplify the information; no endorsement or discrimination is intended.

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