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# **Pest Control Industry: An Assessment of Current Concerns and Needs in Colorado and Wyoming**

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**Abstract.** A mailed survey was sent to members of the Colorado Pest Control Association and other Colorado pest control businesses during June 2009 to determine common pest problems of concern to the industry in Colorado and identify research or educational materials that could assist. A return rate of 33% was achieved. The survey was also distributed prior to a structural pest workshop at the January meeting of the Wyoming Weed Management Association that got 17 responses from Wyoming and Montana participants. Spiders and ants (unspecified) constitute the most common client concerns, followed by cockroaches, bed bugs, flies, and wasps. In Colorado, problems with bed bugs, in particular, have increased greatly within the past five years. Increased problems have also occurred with wasps and spiders. Among the problems considered to be most unusual are sunspiders. More information or research was requested on several pest situations, primarily bed bugs and related species (e.g., bat bugs, swallow bugs), but also ants, flies/cluster flies, wasps, brown recluse spiders, springtails, and duff millipedes. The current Extension Bulletin 560A, *Household Insects of the Rocky Mountain States*, was favorably considered and several changes for future improvement were suggested.

During June 2009, a survey was conducted of the Colorado pest control industry to better understand the concerns and needs of this state industry. Participants were identified by acquiring mailing lists from the Colorado Pest Control Association and from businesses licensed for indoor pest control with the Colorado Department of Agriculture. A total of 138 individuals/businesses were contacted for the survey.

Specifically stated Objectives of the survey were:

- 1. Determine trends of insect problems affecting residential/commercial structures in Colorado;*
- 2. Provide information that can be used to prepare better educational/training materials for use by the Colorado pest control industry; and*
- 3. Identify research projects that would best help the Colorado pest control industry.*

This involved a mail survey form with a series of questions. Along with it was provided a copy of Extension Bulletin 560A, *Household Insects of the Rocky Mountain Region*. A stamped, addressed envelope was also included with the survey.

Question 1 was directed as an attempt to identify recent shifts in pest problems. Respondents were asked about eleven different pest situations: Ants, Bed Bugs, Cockroaches, Millipedes (including Duff Millipede), Fleas, Flies in the Home, Spiders, Termites, Wasps (Paper wasps, yellowjackets, hornets, etc.), and Delusionary Parasitosis. For each they were asked to indicate how the problem has changed in the past five years using a 5-point scale. For analysis, these were given a value of 1-5 as follows:

**Question 1. *How are pests changing?*** Please indicate how the following problems have changed in the past 5 years. (Circle the best description. Leave blank if it is not a problem for you.)

Much Greater (5)      Somewhat Greater (4)      The Same (3)  
Somewhat Less (2)      Much Less (1)

The second question sought to identify which types of pest problems constitute most client concerns that are handled by the Colorado pest control industry. The question was stated as:

**Question 2.** *What are the top five arthropod pest issues (insects, centipedes, spiders, etc.) that you handle regularly in your business?*

Question 3 was an open question directed at identifying research needs. The specific wording was as follows:

**Question 3.** *What are some arthropod (insects, centipedes, spiders, etc.) problems that you would like to have better researched to help with your business?*

The fourth question was also open ended, and sought to indicate insect problems that may have been overlooked in previous

**Question 4.** *What are some of the most unusual arthropod (insects, centipedes, spiders, etc.) problems you have encountered in Colorado?*

The final question was directed at the potential value of Bulletin 560A and how it may be modified to be more useful to the industry:

**Question 5.** The Colorado State University Publication *Household Insects of the Rocky Mountain States* was provided with this survey. This publication is being considered for a major update - if there is interest in pest control industry for it. Could you please comment on two things regarding this publication?

1. *What suggestions would you make to improve it in a future version?*
2. *Would you likely purchase this publication if it was revised and updated?*

A smaller survey was conducted at the Wyoming Weed Management Association (WWMA) conference, held in Casper, WY on January 21, 2010. Prior to a session on structural/household pests a survey was distributed that was similar to the Colorado survey, but lacked Question 5. A total of 17 out of 23 distributed surveys were returned.

## **Results and Discussion**

Of the 138 surveys mailed during the survey of the Colorado Pest Control Association, ultimately there were 46 responses received, representing a 33% return.

**Changes in Pest Incidence.** The biggest change in pest incidence involves bed bugs (Table 1). Seventy-six percent of respondents indicated that problems with bed bugs are “much greater” over the past five years; the others all indicated that they are “somewhat greater”. This suggests not only a very sharp increase in the importance of bed bugs in Colorado but also that it is widespread and encompasses the entire state. Interestingly, bed bugs were not indicated to have increased among the WWMA conference attendees.

**Table 1.** Changes in incidence during the past five years of eleven pest situations occurring in Colorado. Responses were to a 5-point rating scale of: 1 - much less; 2 - somewhat less; 3 - the same; 4 - somewhat greater; and 5 - much greater.

| Average Rating (# indicating “Much Greater”) |                 |                    |
|--|-----------------|--------------------|
| Pest   | Colorado Survey | Wyoming Conference |
| Bed Bugs                                     | 4.7 (31)        | 3.0 (1)            |
| Wasps  | 3.6 (7)         | 3.5                |
| Spiders                                      | 3.6             | 3.8 (2)            |
| Ants   | 3.4 (2)         | 3.5 (1)            |
| Delusionary Parasitosis                      | 3.4 (2)         | 2.6                |
| Indoor Flies                                 | 3.3             | 3.5 (1)            |
| Centipedes                                   | 3.2             | NA                 |
| Termites                                     | 3.0 (1)         | 2.8                |
| Millipedes                                   | 2.8             | 3.6                |
| Cockroaches                                  | 2.7             | 3.0                |
| Fleas  | 2.5             | 2.8                |

Wasp problems also have increased. About 1/6th of the respondents indicated that wasp problems are a “Much Greater” problem. This likely reflects the recent colonization of much of Colorado by the European paper wasp (*Polistes dominula*) that makes conspicuous nests. A similar increase in spider problems (3.6 rating) also was indicated, although this survey was not able to determine if specific species of spiders are involved in the increase. More modest increases in pest problems were reported with ants, indoor flies and centipedes. Pest control operators also indicated that there has been a small increase in clients with delusionary parasitosis issues.

Three of the surveyed pests were reported to have decreased in pest incidence (millipedes, cockroaches, fleas). No change was reported for termites.

Spiders were the pests indicated to have had the greatest increase among the WWMA conference attendees. Other groups reported to have increased the most (3.5 ranking or above) were indoor flies, ants, wasps and millipedes.

**Top Pest Issues.** Twenty-three different arthropods/arthropod groups were listed as being among the top five Household or Nuisance Pests handled by pest control operators (Table 2). Most common were spiders and ants, listed by essentially all respondents. However, the specific species (other than widow spiders) were rarely indicated. Several landscape pests were also mentioned, indicating that some companies responding to this survey are also engaged in managing plant pests.

**Table 2.** Arthropods listed as being among the five most common that were handled by pest control operators in Colorado. Number in ( ) indicate number of responses in Colorado/Wyoming.

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| <i>Household/Nuisance/Stinging Pests</i> |                          |                     |
|--|--------------------------|---------------------|
| Spiders (37/13)                          | Black Widow (4)          | Ants (36/12)        |
| Cockroaches (19/0)                       | Bed Bugs (19/2)          | Wasps (15/4)        |
| Flies (12/1)                             | Earwigs (8/1)            | Centipedes (7/0)    |
| Millipedes (6/1)                         | Pillbug/Sowbug (4/0)     | Mites (4/0)         |
| Scorpions (4/0)                          | Carpet Beetles (3/0)     | Termites (3/1)      |
| Ground Beetles (2/0)                     | Crickets (2/0)           | Grain Bugs (1/0)    |
| Sunspiders (1/0)                         | Springtails (1/0)        | Gnats (1/0)         |
| Silverfish (1/0)                         | Miller Moths (1/1)       |                     |
| <br><i>Landscape Plant Pests</i>         |                          |                     |
| Aphids (2/4)                             | Scale Insects (0/2)      | Borers (0/3)        |
| Mountain Pine Beetle (1/1)               | Leaf /Bark Beetles (1/2) | Boxelder Bugs (0/2) |
| Tent Caterpillars (1/0)                  | Aspen Insects (1/0)      | Sawfly (1/0)        |
| Blister Beetles (0/1)                    | Slug (0/1)               | Mealybug (0/1)      |
| Whitefly (0/1)                           |                          |                     |

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**Pests Situations for Increased Research.** The arthropod pests mentioned of greatest priority for more information/research largely reflected the primary insect pests regularly encountered, particularly those that have shown recent increase. Better information on bed bugs was, by far, the subject that was most often brought forth, noted by 17 respondents. (Five additional responses involved bat bugs or swallow bugs.) Following this were ants (12), flies/cluster flies (9), wasps (7), brown recluse (4), springtails (3) and duff millipedes/millipedes (4).

**Unusual Pests.** To the open ended question asking about the most unusual arthropod pests encountered, there were 24 insects noted. However, only one received more than three mentions - sunspiders. The bizarre appearance of this widespread, but relatively uncommon, arachnid is likely the reason for its special mention. Seven respondents mentioned sunspiders as being “most unusual”; this was also mentioned by one WWMA conference respondent.

Other pests receiving two or more mentions were ants (unspecified species) duff millipedes, carpet beetles, drywood termites, false chinch bugs, miller moths, strawberry root weevil, and bed bugs.

**Comments on an Extension Publication.** The Bulletin 560A provided as part of the survey was appreciated by most all of the recipients. When asked if they would be interested in purchasing a revised version, 83% (34) indicated that they would; another 15% (6) stated that they might.

Not surprisingly, the primary change suggested for a future publication was to include color photographs to illustrate the various arthropods. Illustration of multiple life stages (e.g., larva, adult) and associated life history illustrations (e.g., colonies, damage) was also mentioned. One also suggested developing publications in “Service-in-Action” (currently Extension Fact Sheet) format for clients.

A range of other suggested changes were indicated. Some involved improvements related to diagnostics on insects. Others were related to expansion of coverage on controls. Some of the suggested changes were:

- More coverage on ants

- More on different types of termites (subterranean/drywood)

- Brown recluse myth busters

- Information on rodents (mice, voles, rats)

- Fact/Fiction Q&A/Myth DeBuster

- More chemical specific control measures

- How to treat

- Current control products