

# 2010 Wood Boring and Bark Beetle Detection Survey Final Report

Cory A. Stanley-Vorel<sup>1</sup>, Clint Burfitt<sup>2</sup>, and Ryan Davis<sup>1</sup>

<sup>1</sup>Department of Biology, Utah State University, Logan UT

<sup>2</sup>Utah Department of Agriculture and Food, Salt Lake City UT

**Introduction:** Wood boring and bark beetles represent a dual threat to Utah, which has a large wood industry and a significant amount of forest lands. According to the 2006 Utah Wood Industry Directory, Utah's wood products generate up to \$329 million in sales (Mendenhall and Kuhns, 2006). Utah also contains about 2.2 million acres of forests that have been rated moderately to highly susceptible to bark beetle attack (UDNR, 2003). Increases in international traffic and cargo shipments necessitate increased monitoring for damaging beetles that could arrive via pathways such as wood packing materials or live nursery stock. The possibility of invasive beetles attacking hosts or products with significant commercial value (such as for timber, pulp, or wood products), along with the possibility of loss of domestic or foreign markets due to beetle presence or resultant quarantines, creates a very high potential for a severe economic impact.

In 2010, a survey was conducted to monitor for introductions of beetles from the families Buprestidae and Cerambycidae and from the subfamily Scolytinae, as well as to assist in assessing the status of previously introduced infestations (Table 1). Introduced beetle species could have a devastating economic impact in Utah, as well as cause considerable damage to our forests and other wild lands; therefore, early detection and control of invasive beetle species is key.

**Table 1.** Beetle species from the CAPS Priority Pest List that were targeted by the wood boring and bark beetle survey conducted in Utah in 2010.

Species Name	Common Name	Lure
<i>Hylurgus ligniperda</i>	Red-haired pine bark beetle, golden-haired beetle	UHR alpha-pinene and UHR ethanol
<i>Hylurgops palliatus</i>		UHR ethanol
<i>Ips sexdentatus</i>	six-toothed Ips	Ips lure
<i>Ips typographus</i>	European spruce bark beetle	Ips lure
<i>Orthotomicus erorsus</i>	Mediterranean pine engraver	UHR alpha-pinene and UHR ethanol
<i>Tetropium castaneum</i>	black spruce beetle	UHR alpha-pinene and UHR ethanol
<i>Trypodendron domesticus</i>		UHR ethanol
<i>Xylorhynchus spp.</i>	ambrosia beetles	UHR alpha-pinene and UHR ethanol
<i>Xylotrechus spp.</i>		UHR ethanol, Ips lure, UHR alpha-pinene
<i>Scolytus schevyrewi</i>	banded elm bark beetle	UHR ethanol

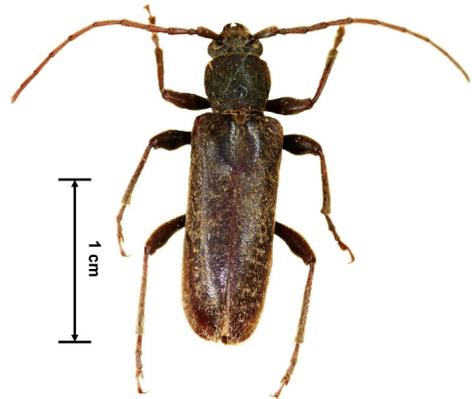
**Objective:** To protect Utah's wood industry and forest lands by surveying for non-native wood boring and bark beetles in areas where they are likely to be introduced in four Utah counties.

**Methods:** During March and April 2010, three Lindgren 12-unit funnel traps were placed at each of 14 sites in four Utah counties, including industrial areas, lumber yards, tree farms, wild lands, and other sites of concern (Table 2, Fig. 2). Sierra brand low toxicity propylene glycol based antifreeze was placed in the bottom cup of each trap and was replenished as needed. At each site, traps were placed at least 30 m apart, and each trap contained one of three lures: ethanol, ethanol with alpha-pinene, and Ips tri-lure. Samples were collected from all traps every two weeks, and lures were replaced every six weeks or more often, if necessary. All traps were removed during September.

Preliminary sorting of samples was done by Cory Stanley-Vorel at Utah State University. All beetles were sent to Clint Burfitt at Utah Department of Agriculture and Food for identification. Suspected target species were forwarded to James LaBonte at the Oregon Department of Agriculture for verification.

**Results:** In 2010, 14 sites in four Utah counties were surveyed for invasive wood boring and bark beetles (Table 2, Fig. 2). In total, 420 samples were collected. The beetles trapped at each site are identified and quantified in Table 2.

Interestingly, four Chinese longhorned beetles, *Trichoferus campestris* (Faldermann) (Fig. 1; Coleoptera: Cerambycidae) were found at traps placed in an industrial area in Salt Lake County (Table 2; Fig. 2). This species is included on the CAPS Priority Pest List. However, a visual survey is advised for *T. campestris*, and its presence in our funnel traps was unexpected. The identity of these specimens was confirmed by both James LaBonte and by USDA-APHIS-PPQ in Riverdale, MD.

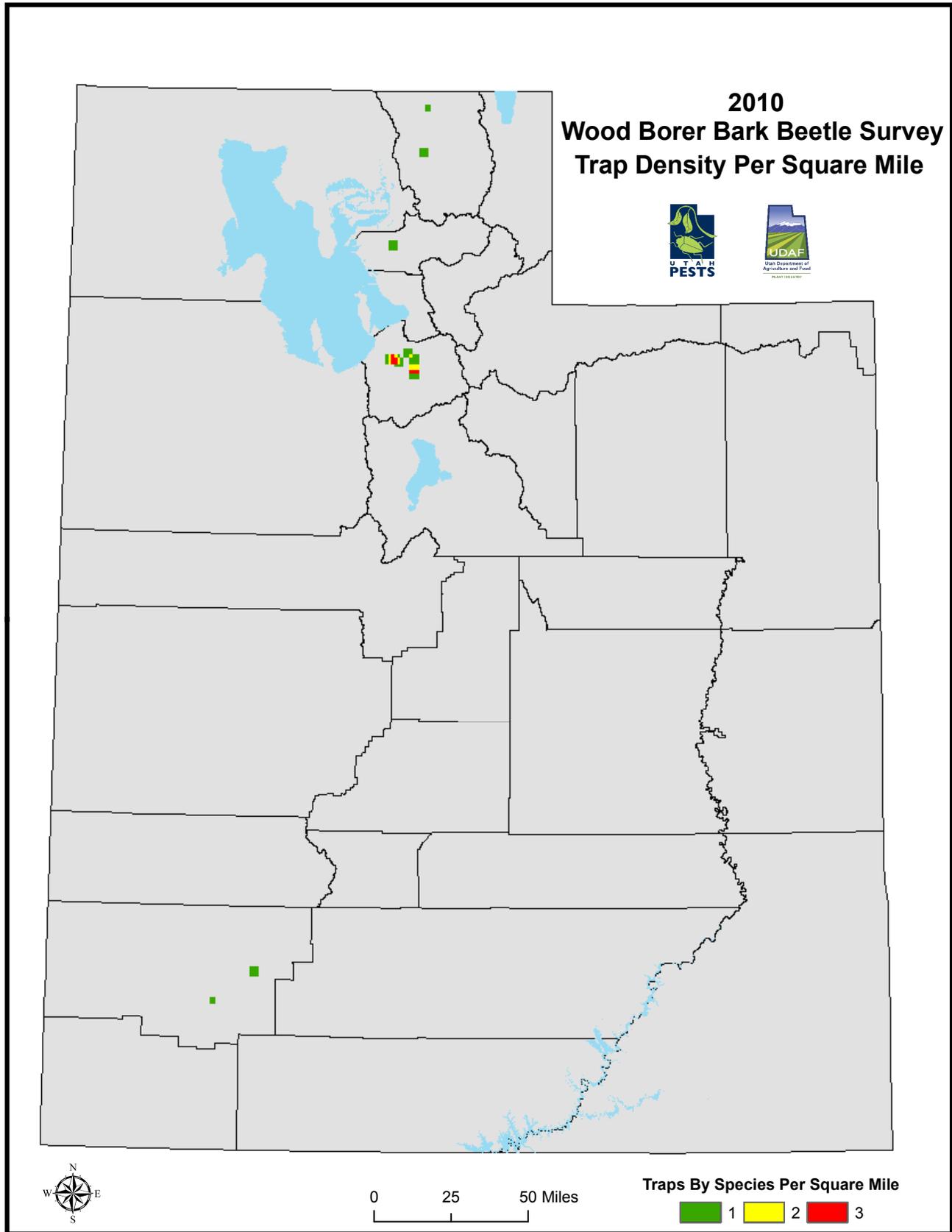


**Figure 1.** *Trichoferus campestris* (Faldermann). (Photo: Christopher Pierce, USDA APHIS PPQ, Bugwood.org)

### References

- Mendenhall, M., and M. Kuhns. 2006. Utah Wood Industry Directory, Utah State University Extension. <http://extension.usu.edu/forestry/Business/Assets/PDFDocs/UtahWoodIndustryDirectory.pdf>.
- Utah Department of Natural Resources, Division of Forestry, Fire and State Lands. 2003. Forest Health in Utah. <http://www.ffsl.utah.gov/foresthealth/fhm.php>.

Figure 2. 2010 Wood Boring and Bark Beetle Survey trapping locations and trap densities (map by Kris Watson, UDAF).



**Table 2.** Compiled beetle trap data for 14 sites in Utah in 2010. Three 12 unit Lindgren funnel traps, each with a lure of either UHR ethanol, UHR ethanol + alpha-pinene, or Ips tri-lure, were placed at each site.

County	Latitude	Longitude	Count	Species
Salt Lake	40.737853	-112.004748	7	<i>Xyleborinus saxeseni</i> (Ratzeburg)
			8	<i>Orthotomicus latidens</i> (LeConte)
			1	<i>Scolytus schevyrewi</i> (Semenor)
Salt Lake	40.717033	-111.982926	11	<i>Scolytus schevyrewi</i> (Semenor)
			34	<i>Orthotomicus latidens</i> (LeConte)
			11	<i>Xyleborinus saxeseni</i> (Ratzeburg)
			1	<i>Hylesinus californicus</i>
			1	<i>Neoclytus acuminatus</i> (Fabricius)
Salt Lake	40.698691	-111.896293	64	<i>Xyleborinus saxeseni</i> (Ratzeburg)
			185	<i>Scolytus schevyrewi</i> (Semenor)
			122	<i>Orthotomicus latidens</i> (LeConte)
			2	<i>Scolytus multistriatus</i> (Marsham)
			3	<i>Neoclytus acuminatus</i> (Fabricius)
			6	<i>Xyleborinus saxeseni</i> (Ratzeburg)
			2	<i>Arhopalus asperatus</i> (LeConte)
			1	<i>Hylastes opacus</i> (Erichson)
			1	<i>Scolytus rugulosus</i> (Müller)
			4	<i>Trichoferus campestris</i> (Faldermann)
Salt Lake	40.691035	-111.898368	496	<i>Orthotomicus latidens</i> (LeConte)
			19	<i>Xyleborinus saxeseni</i> (Ratzeburg)
			1	<i>Scolytus multistriatus</i> (Marsham)
			97	<i>Scolytus schevyrewi</i> (Semenor)
			1	<i>Dendroctonus valens</i> (LeConte)
			5	<i>Ips calligraphus</i> (Germar)
			1	<i>Neoclytus acuminatus</i> (Fabricius)
			3	<i>Arhopalus productus</i> (LeConte)
			22	<i>Arhopalus asperatus</i> (LeConte)
			1	<i>Hylastes opacus</i> (Erichson)
			1	<i>Hylastes gracilis</i> (LeConte)
			11	<i>Melanophila acuminata</i> (Degeer)
			1	<i>Buprestis lyrata</i> (Casey)
Cache	41.923321	-111.810356	12	<i>Orthotomicus latidens</i> (LeConte)
			3	<i>Scolytus schevyrewi</i> (Semenor)
			8	<i>Xyleborinus saxeseni</i> (Ratzeburg)
			22	<i>Xyleborus dispar</i> (Fabricius)
			3	<i>Monochamus scutellatus scutellatus</i> (Say)
			3	<i>Neoclytus caprea</i> (Say)

County	Latitude	Longitude	Count	Species
			1	<i>Anisandrus dispar</i> (Fabricius)
			1	<i>Buprestis lyrata</i> (Casey)
Salt Lake	40.741533	-112.027022	9	<i>Xyleborinus saxeseni</i> (Ratzeburg)
			1	<i>Scolytus schevyrewi</i> (Semenor)
			41	<i>Orthotomicus latidens</i> (LeConte)
			5	<i>Xyleborus intrusus</i>
			2	<i>Neoclytus accuminatus</i> (Fabricius)
			3	<i>Arhopalus asperatus</i> (LeConte)
			1	<i>Melanophila atropurpurea</i> (Say)
Weber	41.275732	-112.039128	23	<i>Xyleborinus saxeseni</i> (Ratzeburg)
			76	<i>Scolytus schevyrewi</i> (Semenor)
			8	<i>Neoclytus acuminatus</i> (Fabricius)
			1	<i>Scolytus multistriatus</i> (Marsham)
			89	<i>Orthotomicus latidens</i> (LeConte)
			2	<i>Dendroctonus valens</i> (LeConte)
			1	<i>Monochamus scutellatus scutellatus</i> (Say)
			1	<i>Phymatodes vulneratus</i> (LeConte)
			2	<i>Hylurgops porosus</i> (LeConte)
			1	<i>Hylastes gracilis</i> (LeConte)
			1	<i>Agrilius granulatus granulatus</i> (Say)
			2	<i>Melanophila atropurpurea</i> (Say)
Salt Lake	40.740313	-112.043964	248	<i>Scolytus schevyrewi</i> (Semenor)
			8	<i>Neoclytus acuminatus</i> (Fabricius)
			16	<i>Orthotomicus latidens</i> (LeConte)
			7	<i>Xyleborinus saxeseni</i> (Ratzeburg)
			3	<i>Neoclytus caprea</i> (Say)
			2	<i>Arhopalus syriacus</i> (Reitter)
			1	<i>Arhopalus asperatus</i> (LeConte)
Salt Lake	40.735262	-111.902	11	<i>Xyleborinus saxeseni</i> (Ratzeburg)
			16	<i>Scolytus schevyrewi</i> (Semenor)
			36	<i>Orthotomicus latidens</i> (LeConte)
			2	<i>Dendroctonus valens</i>
			1	<i>Neoclytus accuminatus</i> (Fabricius)
Salt Lake	40.66618	-111.899833	1308	<i>Scolytus schevyrewi</i> (Semenor)
			253	<i>Orthotomicus latidens</i> (LeConte)
			56	<i>Xyleborinus saxeseni</i> (Ratzeburg)
			2	<i>Dendroctonus valens</i> (LeConte)

County	Latitude	Longitude	Count	Species
			6	<i>Scolytus multistriatus</i> (Marsham)
			3	<i>Xyleborus intrusus</i>
			2	<i>Hylastes porosus</i> (LeConte)
			1	<i>Hylesinus californicus</i>
			1	<i>Rhagium inquisitor</i> (Linnaeus)
			1	<i>Haplidus testaceus</i> (LeConte)
			1	<i>Arhopalus syriacus</i> (Reitter)
			2	<i>Arhopalus asperatus</i> (LeConte)
			2	<i>Chrysobothris breviloba</i> (Fall)
			2	<i>Hylastes opacus</i> (Erichson)
			4	<i>Hylastes gracilis</i> (LeConte)
			1	<i>Hylurgops rugipennis pinifex</i> (Fitch)
			4	<i>Agrilus difficilis</i> (Gory)
			1	<i>Buprestis lyrata</i> (Casey)
Salt Lake	40.762803	-111.939763	386	<i>Scolytus schevyrewi</i> (Semenor)
			52	<i>Orthotomicus latidens</i> (LeConte)
			39	<i>Xyleborinus saxeseni</i> (Ratzeburg)
			5	<i>Neoclytus caprea</i> (Say)
			2	<i>Scolytus multistriatus</i> (Marsham)
			2	<i>Ips calligraphus</i> (Germar)
			3	<i>Neoclytus acuminatus</i> (Fabricius)
			1	<i>Xyleborus intrusus</i>
			2	<i>Hylesinus californicus</i>
			3	<i>Callidium antennatum hespereum</i> (Casey)
			1	<i>Neoclytus leucozonus</i> (Laporte & Gory)
			1	<i>Pityophthorus</i> sp.
			1	<i>Phaenops intrusa</i> (Horn)
Iron	37.690083	-113.064083	1	<i>Hylesinus californicus</i>
			1	<i>Arhopalus asperatus</i> (LeConte)
			2	<i>Xyleborinus saxeseni</i> (Ratzeburg)
Iron	37.838066	-112.817316	1	<i>Xyleborinus saxeseni</i> (Ratzeburg)
			1	<i>Chrysobothris breviloba</i> (Fall)
Cache			8	<i>Xyleborinus saxeseni</i> (Ratzeburg)
			3	<i>Monochamus scutellatus scutellatus</i> (Say)
			1	<i>Neoclytus acuminatus</i> (Fabricius)
			1	<i>Stictoleptura canadensis cribripennis</i> (LeConte)
			4	<i>Neoclytus leucozonus</i> (Laporte & Gory)