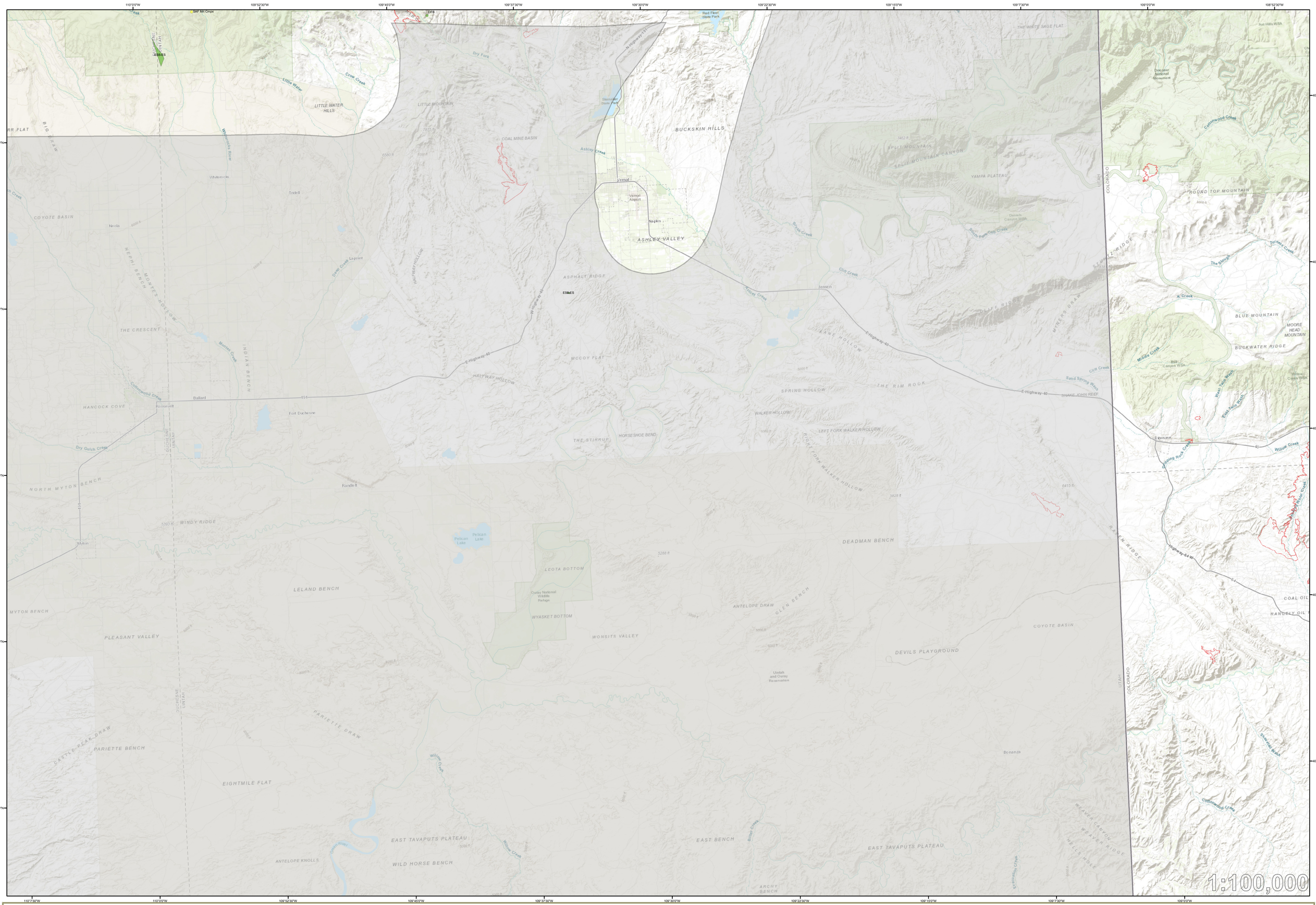
2018 Aerial Insect and Disease Survey
Vernal, Utah



Legend

Damage Points

Number of Trees

- 1 - 5
- 6 - 30
- > 30

Damage Polygons

Percent Affected

- Light (1-10%)
- Moderate (11-50%)
- Severe (>50%)
- Not flown
- Fire Perimeters (2015 - 2017)

CODING SYSTEM

Codes have two parts: the first represents the causal agent and the second represents the host. If needed, the two-part code is followed by an 'M' or 'H' to indicate severity of the activity. Data is color coded to represent the intensity of activity as seen in the legend.

Examples:
MPB-LPP represents mountain pine beetle in Lodgepole pine.
WSB-DF/SAF-H represents western spruce budworm infestation in subalpine fir/Douglas-fir mix with >75% of leaves defoliated.

Causal Agent Codes	
Abiotic	
Avalnch-All	Avalanche
Drt	Drought
Flood	Flooding-high water
FROST	Frost (ASP)
Lnd Sld-All	Mud land slide
Aspen	
ASP Decline	Aspen Decline
ASP Dieback	Aspen Dieback
Mars, Marss Blt	Marssonina blight
Bark Beetles	
DFB	Douglas-fir beetle
ESB	Engelmann Spruce beetle
FEB	Fir engraver beetle
IPS	Pine engraver beetle
Jeffrey PB	Jeffrey pine beetle
MPB	Mountain pine beetle
WBBB	Western balsam bark beetle (SAF)
West PB	Western pine beetle (PP)
Defoliator	
??Def, Defol	Unknown defoliator
BWA	Balsam wooly adelgid
Cttnwd-LB	Cottonwood Leaf Beetle
DFTM	Douglas-fir tussock moth
FTC	Tent caterpillar (ASP)
Satin_Moth	Satin moth
Scale	Pinyon needle scale
Budwrm	Western pine budworm
WSB	Western spruce budworm
Disease	
??Disc	Unknown Foliage or Shoot Disease
??Mrt	Unknown mortality
??Rust	Unknown rust
BlkStn	Black Stain Root Disease
DF-Ndl_Cast	Needle cast
FBR	Fir broom rust (SAF)
Lopho	Lophodermella needle cast (LPP)
SAF-Mrt Cmpx	SAF Mortality Complex
WPBR	White pine blister rust
NdlBlt	Needle blight (CON)

Host Codes	
ASP	Aspen
Bcone	Rocky Mtn bristlecone pine
blckcottonwood	Black cottonwood
CON	Unknown conifer
DF	Douglas-fir
ES	Engelmann spruce
HWD	Unknown hardwood
LIM	Limber pine
LP, LPP	Lodgepole pine
PY-NV, NVpy	Nevada pinyon
PP	Ponderosa Pine
RF	Red fir
SAF	Subalpine fir
SgrP	Sugar pine
PY-UT	Utah pinyon, common or two-needle pinyon
WBP	Whitebark pine
WWP	Western white pine
Miscellaneous	
H	Defoliation - Heavy (>75% of leaves defoliated)
M	Defoliation - Moderate (50-75% of leaves defoliated)
TpK, TK	Top kill
FLAG	Flagging
MORT	Mortality
ALL	All tree species

Region 4 - Location Map
USGS 100K Quad

USGS 100K TOPO!: 40109-A1
Vernal, Utah

Legend

- Counties
- Flown
- R4 Boundary

HOW THE AERIAL SURVEYS ARE CONDUCTED

Data represented on this map are based on trees visibly affected by forest insects, diseases and abiotic factors that are detected and recorded by observers during aerial survey flights. These flights are conducted by a joint partnership between the USDA Forest Service and state cooperators.

Observers have just a few seconds to recognize characteristic signatures of healthy and damaged trees of different species, correctly diagnose damage causal agents, estimate the intensity or extent of damage, and precisely record information on a digital sketch mapping platform. Air turbulence, cloud shadow, haze, smoke, and observer experience can affect the quality of the survey. These sketchmaps and the resultant data summaries provide an estimate of conditions on the ground, and may differ from estimates derived by other methods.

Annual aerial surveys provide important information on the current status of detected causal agents and can be used to determine trends in damage levels over time by comparing previous and current survey data over large areas.

Map Created: 2/15/2019
Projection: UTM NAD83 Zone 12T
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DISCLAIMER

The digital map layer upon which the insect and disease data are presented vary in both source and scale, therefore, accuracy is not guaranteed.

The insect and disease data should be used only as an indicator of insect and disease activity, and should be ground – truthed for actual location and causal agent. Polygons indicate locations of tree mortality, defoliation, and/or other damage. Intensity of damage is variable, and not all trees and areas indicated are dead or damaged. The joint cooperators reserve the right to correct, modify, update, or replace the data as necessary. Using this data for purposes other than those for which it was intended may yield inaccurate or misleading results.