USDA Forest Service
U.S. DEPARTMENT OF AGRICULTURE

DCA List Change Request for DMSM

Contact Information

Name: _____ Title: _____

Agency: _____ Email: _____

Phone: _____ USFS Region: _____

Nature of the Request

☐ Add a new agent

Common name: _____

Scientific name: _____

☐ Modify existing agent

Current scientific name: _____

Proposed scientific name: _____

Current common name: _____

Proposed common name: _____

☐ Modify an agent's category

Current DCA: _____

Current category: _____

Proposed category: _____

☐ Other request

Area of study and points of contact (check all that apply)

☐ Entomology	Contact: Sky Stephens, National Entomologist, stephanie.s.stephens@usda.gov
☐ Pathology	Contact: Bruce Moltzan, National Pathologist, bruce.moltzan@usda.gov
☐ Invasive Plants	Contact: Vanessa Lopez, Invasive Plants National Program Manager, vanessa.lopez@usda.gov
☐ Abiotic/Human	

Details of the request (i.e., what initiated this request, expected outcomes)

Which USFS Regions would be impacted by this change?

☐ R1 ☐ R2 ☐ R3 ☐ R4 ☐ R5 ☐ R6 ☐ R8 ☐ R9 ☐ R10

Requestor's signature: _____ Date: _____

WO Use Only

WO approval: _____

Received by FHAAST: _____

Changes made: _____

Final approved change:

DCA Code List Revision Notes

Declines and Complexes

Declines

Our working definition of ***decline*** comes from ideas presented by Manion (1991):

a slow, progressive deterioration in health and vigor, primarily affecting a mature cohort of trees, demonstrating decreased growth and increased dieback, and having a complex etiology involving abiotic and biotic factors.

- Decline symptomology is non-specific and not diagnostic.
- Decline etiology (set of causes) involves:
  - ***Predisposing factors:*** Long-term. Often climate, site, age, genetic predisposition. May not lead to obvious problems, but predispose trees to:
  - ***Inciting factors:*** Short-term. Things like defoliation, frost damage, drought. If not for the predisposing factors, trees would recover quickly, but predisposed tree go into decline and are vulnerable to:
  - ***Contributing factors:*** generally biotic factors such as opportunistic fungi and insects These finish off the tree, but normally wouldn't do so unless the tree was declining.

(Above paraphrased from http://www.forestpathology.org/decline.html)

The DCA list is a listing of agents. Although declines are not agents per se, we include true declines. Known true declines include:

- Maple decline
- Oak decline
- Sudden aspen decline
- Yellow cedar decline

The above "true" declines are listed in the DCA list

Decline-like syndromes recorded as declines in past surveys include

- Five-needle pine decline
- Hemlock decline
- Larch decline
- Pacific madrone decline

The etiologies for these are, to our knowledge, are either not known, or are known but the disease is not a true decline, but rather a *decline-like syndrome* caused simply from an amalgamation of agents. These should be coded with a DCA code corresponding to the known biotic or abiotic agents involved (if the agents involved are known), or coded with appropriate "unknown" agent codes—e.g. -900 series codes or 90000, (unknown); or with 80300 (other pest complex, known (code pending)) if the disease is a pest complex meeting the requirements discussed in the *Pest Complex* Section.

New declines may become evident in the future. Our surveys will help detect them. As their etiologies become elucidated, they will be added to the list of recognized declines.

Pest Complexes and Other Multi-agent Amalgamations

Only a few agent complexes exist as records in the DCA list. In addition to the 4 described below, there exists DCA code 80300 (other pest complex, known (code pending)) available for use in specific circumstances. Note that we conceptually distinguish "true" complexes from other multi-agent assemblages.

- When a complex involves a well-documented, identifiable, and consistent suite of organisms and where their relationship(s) amongst themselves is obligatory vis-à-vis their interactions with their host tree(s), then such "true" complexes are included in the DCA list. Currently, one such agent complex exist in the DCA list: 22042: **beech bark disease complex** for use for the "killing front" phase of the disease involving both *Cryptococcus fagisuga* and *Nectria coccinea* var. *faginata*
- **Other multi-agent amalgamations** are in general not included in the DCA list, but there are a few rare exceptions to this rule. If the following conditions are met, then the multi-agent assemblages may be included as a separate record in the DCA code list:
  - » the observed syndrome or disease that the assemblage causes is consistently recognizable and attributable to the group; and
  - » the component agents of the amalgamation are sufficiently consistent

Meeting both conditions provides evidence that the amalgamation warrants its own code.

The following multi-agent DCA codes are examples of this:

12234: **fall hardwood defoliator complex**; used in northern parts of Northeastern Areas Region (R9) for a variety of defoliators commonly co-occurring, including: *Heterocampa guttivitta, Heterocampa manteo*, other *Heterocampa* spp., *Symmerista canicosta, Symmerista leucitys*, *Datana ministra*, and *Dryocampa rubicunda*, and favoring American beech, sugar maple, yellow birch, and paper birch.

25084: **white pine needle damage**; used in northeastern parts of the Northeastern Areas Region (R9) for needle damage in white pine species caused by at least three native, fungal pathogens, usually co-occurring: *Lecanosticta acicola, Lophophacidium dooksii*, and *Bifusella linearis*.

80005: **root disease and beetle complex**; for use primarily in R2 for specific instances of root diseases (primarily *Armillaria* spp) working intimately with primarily *Dryocoetes confusus* in Spruce/Fir forest types, frequently in subalpine fir. This code replaces 80002 subalpine fir mortality complex

80006: **ash yellows**; a disease with only partially-known etiology, involving mycoplasma-like organisms: *Candidatus phytoplasma fraxini*, and likely other vectors

Other multi-agent syndromes/complexes should be coded with DCA code 80300 (other pest complex, known (code pending)) ***if the complex components are known and the relationships among agents meets criteria outlined above for (at least) other multi-agent amalgamations***. The surveyor should record the component agents in the Notes field whenever DCA 80300 is used. ***DCA code 9000 should be used in all cases where the agents involved are unknown***.