Vegetation classification crosswalks used in FEIS reviews. II. History in FEIS

The Fire Effects Information System (FEIS) has used six different vegetation classification crosswalks since FEIS first went online in 1986. This document tracks the development of those crosswalks. The crosswalks [7] are available at: https://www.fs.fed.us/database/feis/AboutFEIS/crosswalks/crosswalks.xlsx .

Vegetation classifications use a hierarchical list of categories that describe characteristics of vegetation—and sometimes site information as well—as referenced by a key corresponding to the categories. Vegetation classifications often include cover type, structural or successional stage, and potential natural vegetation type [16, 21].

Land and resource managers require considerable knowledge of the vegetation and habitats they manage [15]. This is aided by accurate, reliable assessments and classification of plant communities and ecosystems, which are essential for planning and resource management [1, 14]. Classification allows managers to objectively distinguish plant associations [1]. Vegetation classifications are used to:

- track successional changes [1, 13, 22],
- provide targets for conservation and land reclamation [1, 26, 27],
- manage and research ecological systems [15],
- organize and interpret ecological information in a biophysical context,
- understand ecological patterns [14, 23], including the persistence of rare species [14],
- project human impacts on ecosystems and the biosphere [14], and
- map fuels and model fire behavior [16, 19, 21].

FEIS incorporates vegetation classification in all FEIS publications. From its inception in 1986, FEIS has used the following vegetation classifications in FEIS Species Reviews, Fire Regime publications, and Fire Studies:

- forest and range ecosystems (FRES types) [11, 12]
- Kuchler potential natural vegetation (Kuchler types) [17, 18]
- forest cover types (SAF types) [2, 25]
- rangeland cover types (SRM types) [24]
- LANDFIRE potential natural vegetation (PNVG types) [20]
- LANDFIRE Biophysical Settings (BpSs) [19].

FRES, Kuchler, and SAF types were used in FEIS Species Reviews from 1986 until 1999, when FEIS began using LANDFIRE'S PNVG types (figure 1). The switch was made because LANDFIRE provided information on fire frequency, fire type, succession, and historical or reference conditions in their PNVG product descriptions [20] that was not available in the vegetation classifications used prior. In 2013, FEIS switched from PNVG types to LANDFIRE's BpSs. In 2015, FEIS staff combined LANDFIRE BpSs into FEIS Fire Regime Groups [8]. These groups are featured in FEIS Fire Regime publications (reports and syntheses) that are accessed through the FEIS user interface. The groupings may change as new FEIS Fire regime publications are produced.

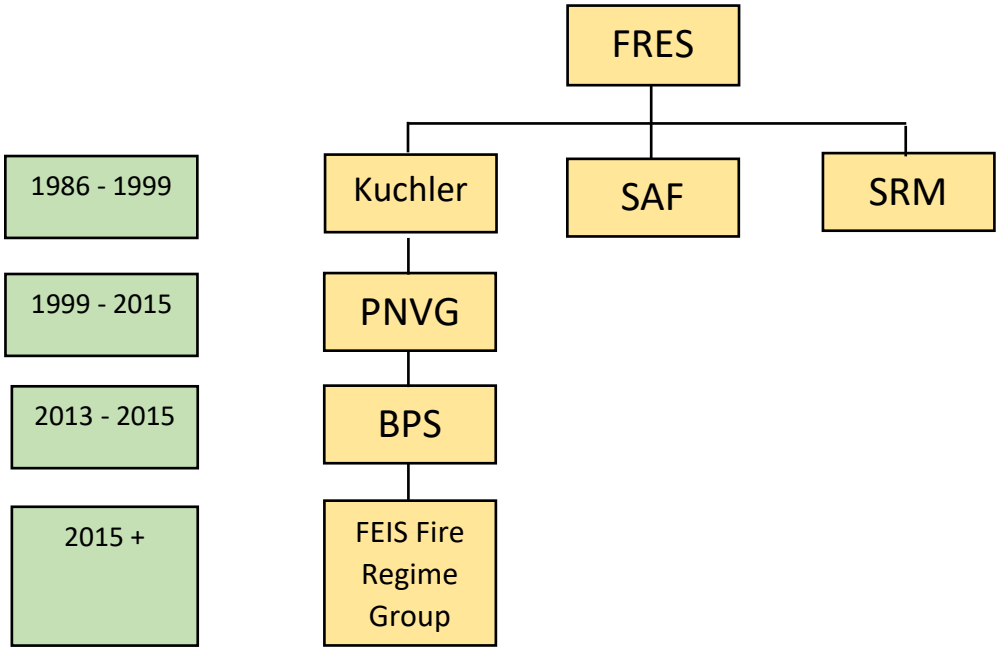

Figure 1—Timeline of vegetation classifications and crosswalks used by FEIS. Kuchler, PNVG, and BpS vegetation classifications are based on potential natural vegetation.

Because new vegetation classifications became available and the FEIS user interface and underlying search capabilities were upgraded, crosswalks among classification types were needed. For instance, FEIS Species Reviews written before 1999 included lists of Kuchler types with which the species were associated, so a crosswalk from Kuchler to PNVG types was needed to enable PNVG-based spatial search capabilities through the FEIS interface. A crosswalk from PNVG to BpS types was made in 2015, when the FEIS added fire regime publications and the interface underwent another upgrade.

The FEIS crosswalk includes all vegetation classifications used in FEIS as of 2017. On 6 different tabs, these are the crosswalks featured:

- BpS to FEIS Fire Regime Groups [8]
- PNVG to BpS type [6, 9]
- Kuchler to PNVG type [5, 9]
- FRES to Kuchler type [10]
- FRES to SAF types [3, 11]
- FRES to SRM type [4]

FEIS Fire Regime Groups, BpS, and PNVG crosswalks are based on similarity of dominant vegetation, geographical area, and fire regimes. Other crosswalks are based on similarity of dominant vegetation and geographical area. A few vegetation types crosswalk in a one-to-one relationship. For example, the Shinnery FRES type (FRES 31) crosswalks only to the Shinnery Kuchler type (K071). Others have a one-to-many relationship. The Shinnery Oak – Mixed Grass PNVG type (PNVG R5SHNS) crosswalks to three BpS

types (BPS 3210940, 3410940, and 3510940). Most vegetation types crosswalk in a many-to-many relationship. For example, there are two Black and Low Sagebrush PNVG types (PNVG R2SBDW and R2MGWAws), which crosswalk to two BpS types (Great Basin Xeric Mixed Sagebrush Shrubland and Columbia Plateau Low Sagebrush Steppe) in seven different Map Zones (Bps 1310790, 1310790, 1710790, 1810790 for Great Basin Xeric Mixed Sagebrush Shrubland; and 1711240, 1810650, and 1811240 for Columbia Plateau Low Sagebrush Steppe).

Because these vegetation types are defined in part by geography, and geography varies among the vegetation types, these crosswalks will not hold true for all geographical areas. Users are urged to read the vegetation type descriptions to see if any given crosswalk applies to their area. Because most crosswalks presented here have many-to-many relationships, the spreadsheet is not intended to crosswalk vegetation types other than those presented. For example, no crosswalk from FRES to BpS types is presented, nor should it be implied by crosswalk relationships of other vegetation types.

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