Draft Guidance for Protecting Native Ecosystems*

1. Purpose and Scope

The NOP promulgated two new regulations in 20XX (date TBD) that define native ecosystems and set an eligibility period of 10 years between conversion of these areas to agricultural use and certification for organic production. These new regulations address the unintended consequences of § 205.202 Land requirements, which indirectly incentivize the immediate destruction of native ecosystems and conversion to organic production as a less expensive and more expedient option than transitioning existing conventional farmland over a three-year period.

The Organic Foods Production Act (OFPA) of 1990 (as amended) and its implementing regulations promulgated by the National Organic Program (NOP) under 7 CFR § 205.200, along with NOP policy documents and NOSB recommendations and principles, include a clear expectation of protecting the natural resources present on an organic operation, made up of the physical, hydrological, and biological features of a production operation. The Act and the Regulations specifically require that harvesting wild crops not be destructive to the environment. The 2016 NOP Guidance on Natural Resources and Biodiversity Conservation (NOP 5020) further clarifies that part of the definition of organic production includes conserving biodiversity, and that the soil, water, wetlands, woodlands, and wildlife must be maintained or improved by organic production practices implemented in accordance with the Act and Regulations. This expectation of ecosystem preservation is also prominent within the organic marketplace, with a clear presumption by consumers that organic farms and ranches will exemplify excellent land stewardship[1].

Many certification agencies around the world address this issue in their standards by prohibiting the conversion of native ecosystems for the purpose of organic certification. Documents and comments submitted to the NOSB during discussions of this issue have described numerous instances, both domestically and overseas, of land that was converted to NOP-certified organic production immediately following the removal of native ecosystems. The two new NOP regulations seek to restrain the conversion of native ecosystems by significantly delaying eligibility for organic certification for recently converted native ecosystems while encouraging the transition of non-organic farmlands. In this way, they are similar to other regulations within U.S. agricultural law that also seek to protect specific natural resources and ecosystems, such as the “sodsaver” and “swampbuster” provisions of the Food Security Act of 1985 (Farm Bill), which disincentivize the conversion of grasslands and wetlands for farming by reducing Federal farm program benefits.

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[1] NOSB Proposal on Eliminating the Incentive to Convert Native Ecosystems to Organic Production, Feb. 27, 2018. Available on the NOP website, https://www.ams.usda.gov/sites/default/files/media/CACSNativeEcosystems.pdf

In the past, the NOP regulations addressed biodiversity once the land was certified, but not before. This Native Ecosystem Guidance covers native ecosystems that were specifically not included in NOP 5020 but were mentioned as a topic requiring further attention[1].

This guidance is created to ensure uniform compliance with the new regulations. It clarifies the definition of the term "native ecosystem", suggests a variety of readily available tools and resources that can be used to help identify whether a native ecosystem is currently present or was present within the previous 10 years on a particular parcel, gives examples of uses and certified production compatible with preserving native ecosystems, and provides examples of land that does not contain a native ecosystem. The guidance also clarifies: 1) the responsibility of certified organic operations and new applicants to identify whether or not a native ecosystem is present (or was present within the previous ten years) on land newly intended for certification; 2) the role of the accredited certifying agent (certifier) in verifying operator and new applicant compliance with this requirement; and 3) the role of inspectors in being qualified and knowledgeable about native ecosystems in order to recognize whether the land contains or recently contained a native ecosystem or not.

This guidance applies to all certifiers, new applicants for certification, and new land being brought into certification by existing NOP operations after 20XX (the effective date of this regulation).

2. Background

Native ecosystems comprise significant reservoirs of local and regional biodiversity and critical sources of carbon in woody plants and the soil. When located on or near organic farms, they also provide a host of ecosystem services that benefit both the certified operation as well as the larger landscape. Examples include: reduced runoff and erosion; more efficient groundwater recharge; habitat for wildlife, beneficial insects, beneficial insectivorous and carnivorous birds, and pollinators; filtering of air and water pollutants; and reduced greenhouse gases. Perhaps their most important attribute is as a source of indigenous beneficial organisms that can colonize nearby semi-natural cultural landscapes such as hedgerows, strip plantings, buffer zones, and the soil rhizosphere.

The National Organic Standards Board (NOSB), a federal advisory committee that advises the USDA on organic issues, first brought up their concern for conversion of native ecosystems in its May 2009 Recommendation and its July 2012 Discussion Document, culminating in the May 2018 NOSB recommendation that the NOP add the following at §205.2 Definitions:

> Native Ecosystems: Native ecosystems can be recognized in the field as retaining both dominant and characteristic plant species as described by established classifications of natural vegetation. These will tend to be on lands that have not been previously cultivated, cleared, drained or otherwise irrevocably altered. However, they could include areas that have recovered expected plant species and structure.

The NOSB also recommended that the NOP add the following language to §205.200 General:

> (a) A site supporting a native ecosystem cannot be certified for organic production as provided for under this regulation for a period of 10 years from the date of conversion.

3. Policy and Procedures

3.1 Discussion of the Native Ecosystems Definition

To be considered as a native ecosystem under the new regulation, the vegetation of the parcel under consideration must contain the **dominant and characteristic plant species** of a native ecosystem described in commonly accepted vegetation classification systems. Dominant plant species, singly or collectively, make up a relatively high proportion of the canopy cover in their respective layers of the ecosystem (trees, shrubs, forbs, and grasses). Characteristic plant species, on the other hand, occur consistently in most samples of a given ecosystem; though they may locally be dominant, they usually occur in lower numbers than the dominant species. Even though they are often present in smaller numbers than the dominant species, these characteristic species can be diagnostic of a native ecosystem when they have a high constancy of occurrence. Remnant native ecosystems in agricultural regions have also been shown to support much more native biodiversity than their surroundings, hosting myriad pollinators, insects, and animals that depend on the diversity of native plant species.

Native ecosystems are typically found on **lands that have not previously been cultivated, cleared, drained or otherwise experienced major, irrevocable, human-caused or natural disturbances**. They reflect spontaneous natural processes, such as biogeography (e.g., dispersal of plants and animals), the geophysical constraints (e.g., soil type, moisture status), and natural disturbance regimes (e.g., wind, fire and floods). Past human influences tend to assume much less prominence in determining the structure of native ecosystems than do natural processes. In many instances, these ecosystems will have existed at a given site for hundreds of years.

This definition does not, however, mean that these native ecosystems are necessarily 'pristine', 'old growth', or have never experienced any human use or disturbance. Many native ecosystems in agricultural settings have been used for various purposes, such as timber, grazing, and wild harvest without fundamentally altering the basic ecological structure, composition and spontaneous natural processes. Many others have been modified indirectly by anthropogenic alteration of landscape-scale processes: two prominent examples are climate change and the suppression of wildfire, both of which are well known to cause long-term shifts in species composition and ecosystem structure. Fire suppression, for example, results in closed-canopy forests composed of fire-intolerant species, while climate change in the American Southwest and other arid regions increasingly favors species adapted to prolonged drought. While they may be relatively species-poor compared to their pre-European settlement versions, these ecosystems still possess the dominant and characteristic species and functional natural processes that define them.

There also are many examples of native ecosystems that have **recovered expected plant species and structure** following land conversion in the distant past: through the process of natural succession, formerly cultivated fields commonly revert to native ecosystems over many decades or centuries after they were abandoned. Irrespective of the age of the ecosystem, the key features are the presence of dominant and characteristic species, whether original or having recovered following past land conversion. The definition thus tends to favor well-established native ecosystems and necessarily excludes areas which have not recovered enough of the dominant and characteristic species typical of native ecosystems and are instead composed chiefly of mixtures of short-lived, weedy species that commonly colonize degraded land following a disturbance.

Systems to classify native ecosystems have existed for well over a century. U.S. states and territories, as well as some other countries, have databases of native ecosystems maintained by natural resources agencies or universities, which in North America are commonly referred to as natural heritage programs. Collectively, these databases are incorporated into several terrestrial ecological classification systems that describe ecosystems at scales ranging from global to national to extremely local (see NatureServe, Ecosystem Classification, in the bibliography). Three of these – the US National Vegetation Classification System (USNVC), International Vegetation Classification (IVC), and NatureServe Terrestrial Ecological Systems Classification (TESC) – are components of the native ecosystem mapping and classification tools mentioned below in section 3.4 and are the ones most likely to be encountered during verification activities pursuant to this regulation. All three are maintained by NatureServe, a scientific biodiversity organization that coordinates the network of the various national, state, provincial, and university natural heritage programs.

Both the USNVC and IVC employ a common hierarchical classification and description of native ecosystems but differ in their geographic scope. The IVC has global applicability and currently covers the U.S., Canada, and other parts of the Western Hemisphere in depth, while the USNVC is the portion of the IVC that applies to the U.S. The IVC is best thought of as a taxonomy of vegetation types arranged in a hierarchy. The upper levels of the classification hierarchy describe generalized vegetation categories of global to regional extent (e.g., all forests, then all temperate forests, then all North American temperate forests), while the lowest levels describe vegetation types at a fine-grained, local scale as small as a few acres (e.g., oak-hickory forest and local variants of oak-hickory forest). Upper hierarchy levels are called “Class” “Subclass” “Formation” and “Division” while lower hierarchy levels are called “Macrogroup” “Group” “Alliance” and “Association.”

Importantly, the IVC describes types that span the continuum from “natural” to “ruderal” to “cultural” vegetation. “Cultural” vegetation, like cropland and lawns, is established by planting and must be maintained by people. “Ruderal” vegetation results from recolonization of previously converted lands, and does not require maintenance by people, but the combination of plants present doesn’t resemble any “natural” vegetation types.

The NatureServe TESC, on the other hand, describes "ecological systems" as recurring sets of native plant communities that are found together on landscapes because of commonalities in landform, soil, drainage patterns, as well as natural disturbances like wildfire or flooding. In contrast to vegetation taxonomies like the IVC, the TESC integrates aspects of traditional land classification systems used in forestry and rangeland management that define vegetation types in terms of their environmental settings. The TESC is focused just on native ecosystems of the U.S., southern Canada, and all of Latin America and Caribbean. Many ecological system types are similar in scale and concept to the IVC "Group" level while others are closer to the IVC "Alliance" level. In practice, the IVC and TESC are sufficiently similar that they often appear together in the major online ecosystem search and mapping applications.

Both classifications are available at NatureServe Explorer, a comprehensive online resource searchable by ecosystem and locality. The USNVC is also maintained at www.usnvc.org. The IVC provides the underlying database for the USGS (U.S. Geological Survey) Natural Terrestrial Ecosystems Viewer, and Data Basin-Ecosystems of the Western Hemisphere, two of the verification tools mentioned later in this guidance.

What is important for purposes of this regulation is not necessarily the ability to classify a native ecosystem down through its entire hierarchical description (from the overarching Class to Subclass, Formation, Division, Macrogroup, Group, Alliance and Association), but to simply recognize the presence of a native vegetation community composed of dominant and characteristic native plant species at a particular site. Appendix A gives examples of the IVC and TESC hierarchy and how common descriptions expected to be provided by operators in their OSP's, such as "oak-hickory forest" or "tallgrass prairie", will in most cases be sufficient to determine that a native ecosystem exists at a site.

Native ecosystems are context specific, meaning their dominant and characteristic species depend on physical factors specific to a given region, notably local and regional climate, topography, soils, geology, and hydrology. In broad terms, the dominant ecosystems in most of the U.S. east of the Mississippi River are deciduous hardwood forests with many variations depending on local physiography and hydrology. Coniferous and mixed coniferous-hardwood forests comprise important ecosystems in the northern and southeastern parts of this range as well as further north into Canada, in the Rocky Mountains and in the parts of the West Coast states. In contrast, the Great Plains receive insufficient rainfall to support forests and, outside of the moister confines of stream valleys, the native ecosystems there are various kinds of grasslands. Even less precipitation falls in the southwestern U.S. and northern Mexico, where a variety of desert and semi-arid ecosystems are characteristic. The intermontane west and large parts of California host a mosaic of native forest, grassland, wetland and desert ecosystems whose distributions strongly reflect local physical factors.

3.2 Land that Doesn't Currently Contain a Native Ecosystem, and Conversion of Land that Does

Examples of Land that Does Not Contain a Native Ecosystem

Lands that no longer contain a native ecosystem are commonly referred to as cultural landscapes. They might be active or abandoned farmland or forest plantations, or other disturbed lands that have not yet recovered the dominant and characteristic plant species that were initially present. Other kinds of human-induced disturbance could occur from development, mining and oil extraction, and the dominance of non-native species.

Disturbance can also occur naturally from intense storms that have altered soil and habitat, or from very hot fires that not only burn above-ground vegetation, but also destroy the regenerating plant crowns and duff layer containing the seed bank. Vegetated areas affected by recent natural disturbances should not automatically be assumed not to contain native ecosystems, however: such areas need time for recovery before determining if they still contain the dominant and characteristic plant species– a process that is greatly influenced by the landscape context of the disturbed area. If the disturbed area lies in or adjacent to a large tract of intact native ecosystem, the spontaneous dispersal and recolonization by the dominant and characteristic species can occur quite rapidly, whereas the recovery process may be much more limited when the affected area is a small ecosystem remnant surrounded by a large expanse of cultural landscape that lacks sources of native plant material and is dominated by invasive, non-native species.

Examples of Conversion

The term “conversion”, as used in this rule, means cultivating, clearing, draining or otherwise irrevocably altering an existing native ecosystem and replacing it with a totally different and unnatural type of vegetation (a cultivated crop, for example), or to the extent that it no longer possesses the dominant and characteristic species that define the ecosystem. Farming examples include replacing native forest ecosystems with monoculture plantations, plowing remnant prairies and replacing them with cultivated crops or non-native forages in ‘improved’ pastures, draining a wetland (permanently altering its hydrology) to allow cultivation of upland species, and felling a mature forest to grow light-demanding crops. When non-native vegetation has been established and maintained by farmers or others, and no natural spontaneous processes and native plant recolonization is allowed, it is clearly not a native ecosystem. Except for the purposes outlined in section 3.3 below, applicants seeking to bring new land into certification must be able to demonstrate that no native ecosystem was present on the tract for the preceding ten years.

3.3 Using Native Ecosystems in Organic Production

A native ecosystem may be used for organic production, provided the production practices do not fundamentally and irrevocably alter the composition and ecological functions of the ecosystem, either by directly removing habitat or through major disturbance of the soil, hydrology and vegetation that would fundamentally change the underlying physical features that support the ecosystem. Examples of organic production that may be compatible with the conservation of native ecosystems when done correctly include low-impact grazing, mushrooms, maple syrup production, and other kinds of wild crop harvesting. In accordance

with 205.200 and 205.201, all such activities must be described in the operation's organic system plan, including a description of the types and frequency of monitoring practices and recordkeeping designed to ensure the integrity of the native ecosystem. This may include monitoring changes in conditions along roads and lanes created to access the native ecosystem for any of these purposes: even though such access roads are narrow features that may not necessarily disturb the ecosystem canopy, they frequently do disturb the soil and ground-level vegetation, and, in forests, result in increased light levels. In this way, they often act as corridors that enable non-native plants and animals to invade and disrupt the native ecosystem.

Grazing Native Ecosystems

Low-impact grazing can be compatible with this regulation, provided that the intensity, frequency, timing and duration of grazing are managed to avoid damaging the ecosystem and to conserve the dominant and characteristic species. Grazing and browsing by native ruminants are natural features in many ecosystems, especially for grasslands and woodlands, where the grazing of bison and other migratory grazers is crucial to maintaining ecosystem structure and regenerating dominant and characteristic plant species. The key feature is that grazing is not continuous; rather, it is transient and intensive as the grazers constantly move about, never remaining for long at one location. Rotational grazing systems that emulate the ancient behavior of wild grazers are highly appropriate in ecosystems where grazing is or was a natural feature. Regular monitoring is essential in this situation; indicators could include: regrowth of herbaceous forage plants; impacts on rare species; soil compaction, saturation, and erosion; excessive browsing of trees and shrubs; and impacts on potential problem areas such as slopes and riparian areas, including water quality.

Mushroom Production

Mushroom production, where fungi are either wild harvested or deliberately grown on logs placed in a forest can be compatible with a native ecosystem, provided impacts are minimized in accordance with NOP 5022, Wild Crop Harvesting Guidance, and the dominant and characteristic species continue to be present as verified by monitoring practices prescribed in the OSP.

Maple Sugaring

The collection of sap for the production of maple syrup is consistent with native ecosystem preservation, provided the sugarbush ecosystem is managed and monitored in accordance with NOP 5022, such as following accepted forestry practices for thinning the stand while conserving the dominant and characteristic species. Other practices may include maintaining diversity of species and mixed ages in the stand, avoiding impacts to priority species, conserving snags and live trees with cavities, and leaving brush piles.

Wild Crop Harvesting

Wild crop harvesting is appropriate in native ecosystems, provided the activity is not destructive to the environment and sustains the population of the wild crop, as specified under 205.207(b), wild crop harvesting practice standard, and NOP 5022 Wild Crop Harvesting Guidance. With the newly updated 205.200 standard, the dominant and characteristic plant species must now be specifically conserved and monitored.

3.4 Methods and Tools for Verifying Compliance

Several mutually complimentary tools and resources are available to verify compliance with this rule. Their use falls into two groups: 1) From a Desk: using indirect, or remotely sensed imagery and mapping; and 2) A site visit: using direct, on site observation and technical assistance. These tools and resources are briefly highlighted below.[2]

From a Desk: In most instances, remote methods may be all that is needed for verification; nearly all are readily available online, and most also have analog counterparts for those lacking internet access. [3]
Examples include:

- **Aerial photos** and **satellite imagery** – both are commonly used for verifying land use history and ecosystem monitoring. Available globally from a wide range of sources, including USGS Earth Explorer, USDA FSA (Farm Services Agency), Google Earth Pro, NASA, Copernicus Open Access Hub, Global Forest Watch, Natural Resources Canada, National Institute of Statistics, Geography, and Informatics (INEGI, Mexico), and numerous state and local government agencies and websites. Aerial photos are generally of higher resolution than satellite imagery, but may not be readily available outside of the U.S. and Canada; whereas satellite imagery is available for anywhere in the world.
- **Native Ecosystem Maps** – used for making conservation planning decisions. The USGS Natural Terrestrial Ecosystems map is capable of identifying upland and wetland vegetation down to the ecological system level, as well as other categories including cultivated cropland. Data Basin provides similar maps covering most of the Western Hemisphere. These online mapping systems are works in progress and may give uneven results, but they are nevertheless useful for making an initial ecosystem determination for a specific location.
- **Vegetation Classifications** – NatureServe Explorer contains current IVC and TESC descriptions and classifications of native ecosystems of North America and elsewhere in the Western Hemisphere. It is searchable by ecosystem and location (e.g., a state or province).

[2] Wild Farm Alliance's "Organic Native Ecosystem Application and Verification Toolkit" provides an in-depth summary of these tools and resources, with commentary explaining how and when the tools could be used, where to access them and examples of their use.
[3] Many published plant field guides are widely available in print and can be used to determine the dominant and characteristic plants present on the site, and some agencies are able to provide hard copies of aerial photos.

- **Wetland Maps** – typically used to identify the presence and regulatory status of wetlands. Wetland Mapper, an online viewer hosted by the U.S. Fish and Wildlife Service, shows the locations and classifications of wetlands contained in the National Wetland Inventory.
- **Soils Maps** – widely used for a variety of agricultural, environmental, and engineering purposes. Most soil maps, such as USDA Natural Resources Conservation Service (NRCS) Web Soil Survey, identify hydric soils, which are closely associated with wetlands, and some county soil surveys in the U.S. indicate the class of native vegetation originally present on individual soil map units.

Site Visit: In some cases, direct observation of the site may be needed for verification purposes. At many sites, this would most logically be performed by an inspector sufficiently versed in local ecology to differentiate between a native ecosystem and other kinds of vegetation. However, several other options are also available to operators for direct onsite observation and technical assistance.

Applicants participating in sponsored conservation activities could submit a conservation activity plan, natural resources inventory, or similar documentation from NRCS or another agency that identifies the locations of any native ecosystems present. Alternately, the application could include an affidavit from a qualified disinterested party affirming that the land proposed for certification: a) has not contained a native ecosystem for at least 10 years prior to the date of first organic harvest; b) has contained a native ecosystem within the last 10 years, and the date of conversion; or c) currently contains a native ecosystem. A qualified, disinterested party could include NRCS staff or one of their Technical Service Providers, soil and water (or resource) conservation district staff, previous landowner, biologist (state, NGO, or private) or in some states, an extension agent. Availability of conservation agency staff for this purpose is likely contingent upon the participation of the operator/landowner in sponsored conservation programs.

3.5 Role of Certified Organic Operations and New Applicants[4]

- Certified organic operations and new applicants for certification must complete and submit an Organic System Plan (OSP) to an accredited certifier. (7 CFR §205.201)
- In the OSP, operators and new applicants must demonstrate whether or not a native ecosystem is or was present within the past ten years on land newly proposed for certification, and they may do that by using Wild Farm Alliance's (WFA) model "Native Ecosystems Prior Land Use Declaration form" or a similar form.[5]

[4] Certified operations, new applicants, certifiers and inspectors may refer to WFA's "Organic Native Ecosystem Application and Verification Toolkit" for demonstrating and verifying compliance.

[5] A model Native Ecosystems Prior Land Use Declaration form is part of WFA's "Organic Native Ecosystem Application and Verification Toolkit."

- Certifiers typically require a farm map to accompany the OSP, and in many cases, applicants submit a map based on a FSA aerial photo that shows land cover on the tracts proposed for certification during the relevant timeframe.
- If the land proposed for certification has not contained a native ecosystem within the previous ten years, it may be eligible for immediate certification, provided other relevant provisions in Part 205 are met.
- If it currently contains a native ecosystem, it may still be eligible for certification, provided the OSP explains how the proposed production practices will conserve the native ecosystem, such as (but not limited to) the examples given in section 3.3 above.
- If a native ecosystem has been converted to agricultural production within the previous ten years, or is intended to be converted following certification, then the parcel containing the native ecosystem is not eligible for certification for a period of ten years after the date of conversion.
- Certified operations must implement the production and monitoring practices specified in the OSP and maintain records that enable the certifier to verify compliance.

3.6 Role of Certifiers[3]

- Certifiers must ensure that the applicant's OSP accurately describes the ten-year land cover history on land newly proposed for certification (as distinct from the three-year field history) and whether a native ecosystem is or was present within that time frame. As part of the initial onsite inspection, certifiers should ensure that inspectors observe the land and use other tools as necessary to verify the land cover history described in the OSP.
- In situations where a native ecosystem is present and intended to support organic production, certifiers must ensure the OSP describes a monitoring plan sufficient to support the conservation of the native ecosystem and a reliable recordkeeping system (e.g., photos, counts of native dominant and characteristic species , invasive species monitoring and management, health or abundance of species being used in organic production) adequate for verification.
- Pursuant to 7 CFR §205.504, certifiers should ensure that inspectors are sufficiently qualified to be able to assess and recognize native ecosystems in the region(s) in which they inspect. Specifically, every certification agency must have inspectors and staff with sufficient ecological literacy to verify whether land newly proposed for certification has or had a native ecosystem on it in the last 10 years.
- Certifiers who work with organic operations outside of the US who are selling products under the NOP seal must ensure that: a) those operations in countries with native ecosystem-like protections are in compliance with their home regulations (see Appendix B); [6] and b) operations in countries lacking those protections are compliant with this rule.

[6] Incorporating native ecosystem protections into equivalency agreements should be examined further for all those countries listed in Appendix A.

3.7 Role of Inspectors[3]

- Inspectors must be qualified to evaluate compliance with the new native ecosystem regulations in 7 CFR §205.200. That means inspectors must be able to recognize native ecosystems in the region(s) where they inspect.[7]
- During the onsite inspection, inspectors must verify: a) the accuracy of the OSP regarding whether a native ecosystem is or was present within the past ten years on land proposed for certification; and b) the operator's activities and ecosystem monitoring program for situations where organic production is occurring within a native ecosystem. Inspectors may also review plans, reports, and natural resource inventories created as part of the operator's participation in conservation activities supported by NRCS and other third-party organizations.
- While onsite, inspectors should note damage to the native ecosystem caused by events beyond the control of the operator, such as extreme climatic events, wildfire, and pest outbreaks.

4. References

Organic Foods Production Act (OFPA) of 1990, as amended, 7 USC, Chapter 94:
7 USC 6504 National Standards For Organic Production

7 USC 6513(f) Management of wild crops

USDA Organic Regulations (7 C.F.R. Part 205)
7 C.F.R. Part 205. Preamble.
"[t]he use of 'conserve' [in the definition of organic production] establishes that the producer must initiate practices to support biodiversity and avoid, to the extent practicable, any activities that would diminish it. Compliance with the requirement to conserve biodiversity requires that a producer incorporate practices in his or her organic system plan that are beneficial to biodiversity on his or her operation."

7 C.F.R. §205.2 Terms Defined.

Natural resources of the operation. The physical, hydrological, and biological features of a production operation, including soil, water, woodlands, wetlands, and wildlife.

Organic production. A production system that is managed to respond to site-specific conditions by integrating cultural, biological, and mechanical practices that foster cycling of resources, promote ecological balance, and **conserve biodiversity** (emphasis added).

Wild crop. Any plant or portion of a plant that is collected or harvested from a site that is not maintained under cultivation or other agricultural management.

[7] In addition to the Organic Native Ecosystem Application and Verification Toolkit, WFA will be offering webinars on how to inspect sites with and without native ecosystems.

7 C.F.R. § 205.103 Recordkeeping by certified operations.
7 C.F.R. §205.200 General.
7 C.F.R. §205.201 Organic production and handling system plan.
7 C.F.R. §205.202 Land requirements.
7 C.F.R. §205.206(b)(1)(2) Crop pest, weed, and disease management practice standard.
7 C.F.R. §205.207. Wild crop harvesting practice standard.
7 C.F.R. § 205.501 General requirements for accreditation

NOP Program Handbook
NOP 5020. Guidance – Natural Resources and Biodiversity Conservation
NOP 5020-1. Response to Comments – Natural Resources and Biodiversity Conservation
NOP 5022. Guidance – Wild Crop Harvesting
NOP Notice to Certifying Agents: Criteria and Qualifications for Organic Inspectors 4/27/2012

NOSB Documents and Recommendations
Joint Crops & Compliance, Accreditation, and Certification Committee, NOSB Recommendation, "Implementation of Biodiversity Conservation in Organic Agriculture Systems," May 2009.
Compliance, Accreditation and Certification Committee Discussion Document "Implementation of Biodiversity Conservation in Organic Agriculture Systems," July 2012.

Certification, Accreditation and Compliance Subcommittee, NOSB Recommendation, "Eliminating the Incentive to Convert Native Ecosystems to Organic Production," April 2018.

Other Laws and Regulations
Endangered Species Act of 1973, 16 U.S.C. § 1531 et seq.

Food Security Act of 1985 (Title XII, P.L. 99-198, 99 Stat. 1354, December 23, 1985), as amended by the Food, Agriculture, Conservation, and Trade Act of 1990 (Title XIV, P.L. 101-624, 104 Stat. 3359, November 28, 1990). C.f., https://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/national/water/wetlands/?cid=stelprdb1043554

Technical Resources
Classification of wetlands and deepwater habitats of the United States, Cowardin, L. M., Carter, V., Golet, F. C., and LaRoe, E. T. (1979), FWS/OBS-79/31, Reprinted 1992, U.S. Fish and Wildlife Service, Washington, D.C. https://www.fws.gov/wetlands/documents/classwet/index.html

Data Basin-Ecosystems of the Western Hemisphere.
https://databasin.org/maps/new#datasets=db6bef1fcd3a46c881ee8322aa14854f

Google Earth Pro. How to Install, Use, and Uninstall Google Earth Pro
https://support.google.com/earth/answer/21955?hl=en#

NASA Earth Observatory, Tracking Amazon Deforestation from Above: https://earthobservatory.nasa.gov/images/145988/tracking-amazon-deforestation-from-above

NatureServe. Ecosystem Classification: Putting a Name on Ecosystems. https://www.natureserve.org/conservation-tools/ecosystem-classification

Natureserve Explorer. Descriptions of native ecosystems under the International Vegetation Classification and Ecological Systems classification systems. https://explorer.natureserve.org/

U.S. Department of Agriculture-Natural Resources Conservation Service, Plants Database. Comprehensive catalogue of native and non-native plants, with descriptions, habitats, and significance. https://plants.sc.egov.usda.gov/

U.S. Geological Survey Terrestrial Ecosystems Viewer: https://maps.usgs.gov/terrestrial-ecosystems-2011/

U.S. Geological Survey, Earth Explorer (comprehensive collection of historical and modern aerial and satellite imagery, including complete coverage of U.S. agricultural lands via the National Agricultural Imagery Program): https://earthexplorer.usgs.gov/

U.S. Fish and Wildlife Service, Wetland Mapper (the most comprehensive map of U.S. wetlands available): https://www.fws.gov/wetlands/data/Mapper.html

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Appendix A: Two Examples of Native Ecosystem Classifications: Midwestern Oak - Hickory Forest and Tallgrass Prairie

The International Vegetation Classification system, found at Nature Serve Explorer, encompasses and describes a hierarchy of ecosystems, from very broad regional biomes at the higher end, to very specific local ecosystems at the lower end. The most important categories in the two example classifications below are the lower ones (the Group, Alliance, and Association levels of the IVC, and Ecological Systems of the TESC). These categories are typically named by the dominant species present. Summary descriptions of the Associations, Alliances, and Ecological Systems, found at NatureServe Explorer, also list characteristic species that can further help to identify the ecosystem and appropriate monitoring targets if it is subsequently grazed or harvested as part of organic production practices. Notably, many operators will likely describe local ecosystems in general, popular terms comparable to the broadest levels of classification (e.g., “oak forest” or “prairie”). It must be emphasized that this is perfectly acceptable because **they recognize the presence of a native ecosystem**.

Example of a Midwestern White Oak-Northern Red Oak-Shagbark Hickory Forest
Midwesterners may be familiar with a widespread type of oak-hickory forest composed of *white oak, northern red oak, and shagbark hickory*. At the most detailed level in the IVC, this

ecosystem is classified as White Oak-Northern Red Oak-Shagbark Hickory Midwest Forest after its three dominant species. On the other hand, the ESUS, with its single tier of classification, assigns this type of forest to North-Central Interior Dry-Mesic Oak Forest and Woodland ecological system. This is a somewhat broader ecosystem category generally comparable to the Group level of the IVC, and containing other component oak-dominated associations in addition to the one identified under the IVC. More information about the individual species listed can be found in both the USDA NRCS Plants Database and in the NatureServe Explorer species database.

International Vegetation Classification
Class: 1. Forest & Woodland
Subclass: 1.B. Temperate & Boreal Forest & Woodland
Formation: 1.B.2. Cool Temperate Forest & Woodland
Division: 1.B.2.Na. Eastern North America Forest & Woodland
Macrogroup: M012. Central Midwest Oak Forest, Woodland, & Savanna
Group: G649. North-Central Oak - Hickory Forest & Woodland
Alliance: A3323. White Oak - Northern Red Oak - Hickory species North-Central Forest Alliance
Association: CEGL 2068. White Oak-Northern Red Oak-Shagbark Hickory Midwest Forest

Ecological Systems of the United States
CES202.046. North-Central Interior Dry-Mesic Oak Forest and Woodland

Example of Big Bluestem-Indiangrass-Sunflower Ecosystem
Residents of the American Plains may recognize tallgrass prairies, which are dominated by high-profile grass species, notably big bluestem and Indiangrass, and commonly contain a variety of characteristic flowering plants, including several species of native sunflowers. Their classification in the IVC follows a similar hierarchy to the previous example, with species-specific alliances and associations. Under the ESUS, however, this ecosystem is simply classified as Southern Tallgrass Prairie, a near-perfect analog of the Group of the same name in the IVC hierarchy.

Class: 2. Shrub & Herb Vegetation
Subclass: 2.B. Temperate & Boreal Grassland & Shrubland
Formation: 2.B.2. Temperate Grassland & Shrubland
Division: 2.B.2.Nb. Central North American Grassland & Shrubland
Macrogroup: M054. Central Lowlands Tallgrass Prairie
Group: G334. Southern Tallgrass Prairie
Alliance: A4045. Big Bluestem - Indiangrass - Sunflower species Southern Grassland Alliance
Association: CEGL002204. Big Bluestem - Indiangrass Unglaciated Grassland

Ecological Systems of the United States
CES205.685. Southern Tallgrass Prairie

Appendix B: International Organic Standards Protecting Areas Similar to Native Ecosystems

Argentina (Argencert)	Deforestation of primeval forests prohibited on land intended for organic production prior to application for certification
Australia (Australian Certified Organic)	No clearing of primary forest and destruction of primary ecosystems on land intended for organic production prior to application for certification
Brazil's IBD Certification Ltd	No opening of virgin or primary forest areas
Britain's Soil Association	No clearing of high conservation value areas for organic farming
Bolivia's Bolicert	No slash and burn of primary forests or virgin soils
Germany's Naturland	No clearing of primary forest and no cultivation of primary organic systems (e. g. tundra).
International Federation of Organic Movements (IFOAM)	No conversion of high conservation value areas. Farming areas installed on land that has been obtained by clearing of High Conservation Value Areas in the preceding 5 years shall not be considered compliant with this standard.
Irelands' Organic Trust Limited	Must conserve high nature-value farmland
Italy's CCPB SRL	No clearing or destruction of high conservation value areas within 5 years of certification
Japan's Organic & Natural Foods Assoc.	Not to break or develop land, forest and / or wetland without environmental assessment. Must protect and maintain trees and the woods.
New Zealand's AsureQuality Limited	No clearing of primary forest and ecosystems or high conservation value areas
Sweden's KRAV	No clearing of primary forest and ecosystems or High Conservation Areas
Switzerland's Bio Suisse	No clearing areas of high conservation value