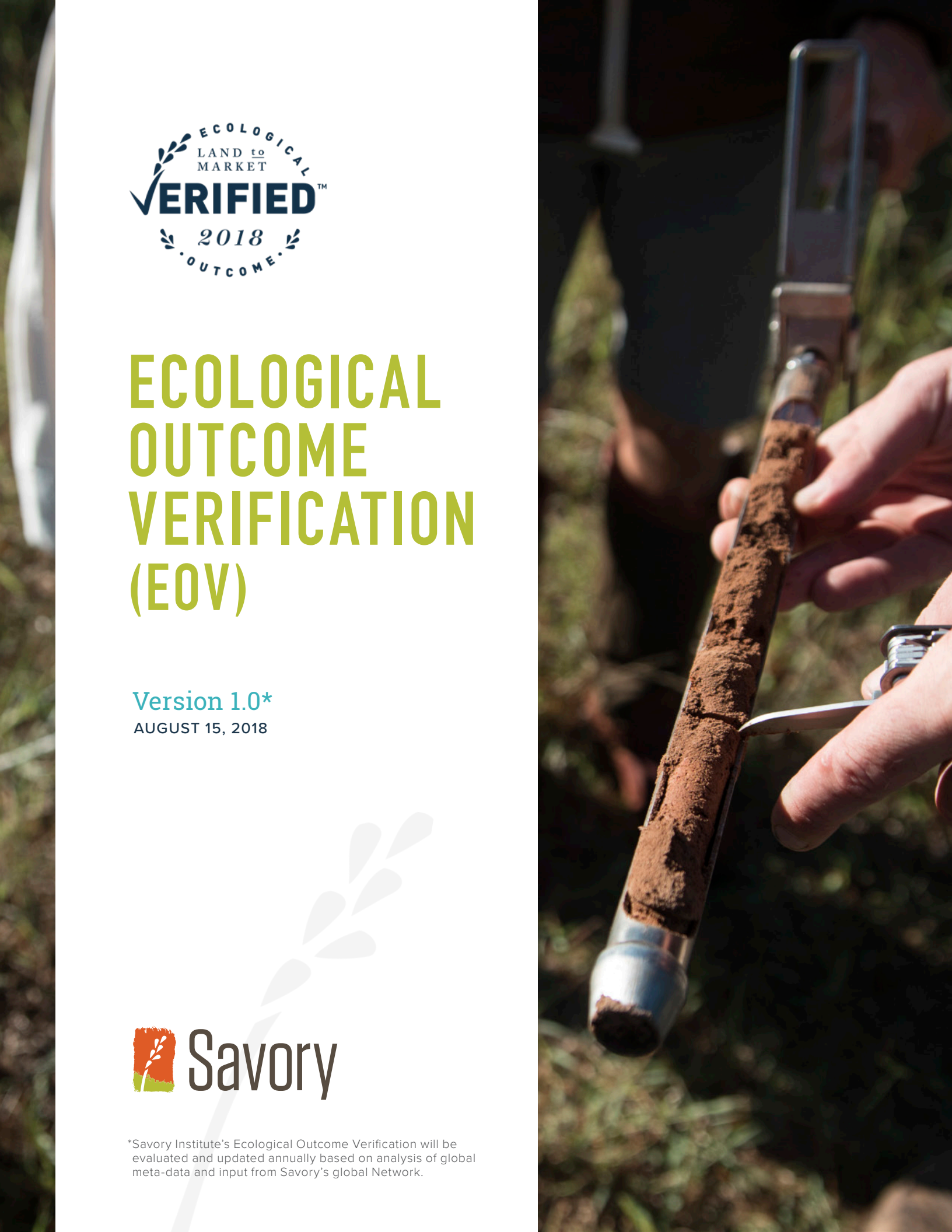

ECOLOGICAL LAND to MARKET VERIFIED™ 2018 OUTCOME

ECOLOGICAL OUTCOME VERIFICATION (EOV)

Version 1.0*

AUGUST 15, 2018

Savory

*Savory Institute's Ecological Outcome Verification will be evaluated and updated annually based on analysis of global meta-data and input from Savory's global Network.

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OVERVIEW OF EOV & LAND TO MARKET PROGRAM

EOV Overview

Ecological Outcome Verification (EOV) is the “science inside” Savory Institute’s Land to Market program. Land to Market is a sourcing solution that connects conscientious buyers, brands and retailers directly to farms and ranches that are verified to be regenerating their land. EOV is the empirical instrument used to qualify participating farms and ranches into the program.

EOV was developed in collaboration with leading soil scientists, ecologists, agronomists, and an extensive network of regenerative land managers around the world. EOV is a practical and scalable soil and landscape assessment methodology that tracks outcomes in biodiversity, soil health, and ecosystem function (water cycle, mineral cycle, energy flow and community dynamics). EOV applies to grassland environments, including natural and planted grasslands, as well as grassland mixed with crop and/or forest areas. Farms and ranches demonstrating positively trending outcomes in land regeneration through EOV are entered into a “Verified Regenerative Supplier Roster”, from which participating buyers, brands, retailers and end consumers can access products or services that have been produced on a verified regenerative land base.

LAND TO MARKET OFFERS A FULL CIRCLE SOLUTION FOR REGENERATIVE SOURCING

EOV Ethos

EOV is designed to reflect the Savory Institute's enduring commitment to farmer education, support, and continuous improvement in community with their peers and with respect for their given context. It is therefore designed according to the following strategic pillars:

Outcome Based

Many certification schemes are based upon an inventory of farmer practices. The problem is that the use of practices or tools does not guarantee that regeneration will take place. Outcomes depend on how and when practices and tools are used, and that depends on contextual variances in cultural, environmental, and economic conditions. EOV gives the land a voice of its own, through empirical and tangible outcomes, which in turn provide the farmer with ongoing feedback from which to make better management decisions. EOV measures and trends key indicators of ecosystem function, which in the aggregate indicate positive or negative trends in the overall health of a landscape. In addition to providing an outcome-based verification of the health of the land base, EOV also provides critical intelligence to the farmer as a steward and manager of the land. By recognizing both land regeneration targets and trends, EOV endorsement and associated incentives are bestowed as long as land health moves in a net positive direction.

Contextually Relevant

EOV is not a one-size-fits-all metric. Each EOV evaluation is contextualized within its given ecoregion. Each ecoregion contains its own biodiversity of flora and fauna and has unique characteristics for water retention, biodiversity, soil types , and so on. Using well recognized Ecoregions maps, contextualization occurs by defining a catalogue of alternate states of soil and vegetation inside each ecoregion (State and Transition catalogue). Reference Areas are identified and monitored on those states that have higher biodiversity, resilience, and ecosystem function effectiveness. Reference areas are used to contextualize an evaluation matrix of Ecological Health, to be used in farm evaluations and verification of land health. Farms and ranches within that

ecoregion are then benchmarked against that reference area, allowing the farmers and ranchers to better understand the potential of their own property within the operating conditions of their unique context.

Farmer First

Photo credit BTBETTY

EOV is not a top-down assessment tool. It is designed to be a non-punitive learning mechanism for marketplace differentiation, continuous improvement, and ongoing peer support for land managers. EOV is implemented by Savory's global Network of regional Hubs, who work closely with farmers and ranchers in their given areas. Savory accredited monitors are therefore deeply knowledgeable of the local ecology and well versed in local operating conditions and management approaches. Those farmers seeking training, coaching and implementation support in order to improve their ecological outcomes can find such services with their regional Savory Hub and its network of producers. Several indicators in the EOV protocol provide rapid, instructive feedback for farmers in their daily management decisions. Every five years the regional Hub Verifier will collect additional data of slower indicators, such as biodiversity and soil carbon. The learning and understanding of correlations between leading (fast) and lagging (slower) indicators is an incredible asset in informing management.

Photo credit BTBETTY

EOV Metrics Summary

Farms are set up with EOV using satellite cartography. A farm monitoring plan will combine Short Term monitoring stations, distributed extensively throughout the farm, with permanent transects and photopoints located at representative areas of the farm. Both monitoring procedures are linked by the Ecological Health Index, calculated using the scorecard.

Short Term monitoring occur in years 1–4 of participation in the program. Long Term monitoring visits occur in year 0 (the baseline assessment) and every 5 years thereafter.

Short Term monitoring criteria is mainly comprised of “Leading Indicators” of ecological health, or those indicators that have predictive value about the direction of changes. Leading Indicators are very useful for documenting and influencing management. Short Term

monitoring indicators were selected from Allan Savory`s work and many important references in the scientific literature. They include:

- Live canopy abundance
- Living organisms
- Vigour and reproduction of contextually desirable functional groups
- Contextually desirable/undesirable species
- Plant litter
- Litter incorporation
- Dung decomposition
- Bare soil
- Soil capping
- Wind erosion
- Water erosion

Long Term criteria are comprised of all the Short Term criteria listed above, plus a suite of "Lagging Indicators" for land regeneration such as canopy cover by species and functional groups, biodiversity indicators, water infiltration, soil carbon, and soil equivalent fixed mass. All these indicators are estimated using acknowledged scientific methodologies. Unlike Leading Indicators, Lagging Indicator values give little chance for speedy corrective measures. The Lagging Indicators do provide strong scientific validation on the function of the ecosystem processes. EOV seeks to have an adequate balance between both Leading Indicators, which are highly useful to farmers, and Lagging Indicators, which are more useful for scientists, secondary markets and brands. A balanced combination of both monitoring procedures is a practical, cost effective way of verifying land management outcomes as a whole.

The EOV will document the dynamic aspects of soil health that are dependent on soils' inherent properties as well as the influence that land use and management can have over time. Additional soil health protocols may be added as local context allows.

Techniques and protocols for measuring some of these Long Term indicators may be adjusted to accommodate the contextual resource availability—for example, access to labs for sample analysis. In these cases and when vetted by the Savory Institute Quality Assurance team, the EOV protocol will allow for more relevant methods to be used. The data will be analyzed and correlations established using the global aggregated data. This will allow for proactive measurement and learning as the protocol and new technologies evolve.

EOV Onboarding Process

In order receive Ecological Outcome Verification, and participate in the Verified Regenerative Supplier Roster of Savory Institute's Land to Market program, a producer, farmer, rancher or supplier follows these steps:

START

Contact us via our website, or contact your regional Hub

YEAR 0

Regional Hub Verifier schedules a farm visit, and establishes monitoring sites and baseline data for both Short and Long Term Indicators.

YEARS 1, 2, 3, 4, THEN YEARS 6, 7, 8, 9

Regional accredited monitors visit the farms to conduct the annual Short Term monitoring. If results trend positive in the context of the ecoregion, Verification is granted/renewed and the farm is entered into Land to Market Verified Regenerative Supplier Roster. Farmers can undergo training and accreditation by the local Hub Verifier to conduct the Short Term monitoring on their own and other local farms.

YEARS 5, 10, & SUBSEQUENT 5-YEAR INTERVALS

Regional Hub Verifier returns to the farm to conduct Long Term monitoring. If data trends positive, Verification is granted/renewed and farm remains on Land to Market Verified Regenerative Supplier Roster.

EOV IMPLEMENTATION

1 Regional Hub Set-Up · · · 2 On-Farm Monitoring · · · 3 Regional & Global Quality Assurance

Photo credit Judith Crispin, with permission

1 Step 1: Regional Hub Set-Up

Performed by Master Verifiers with Accredited Hub Verifiers

REGIONAL HUB SET-UP INCLUDES THE FOLLOWING FOUR STEPS:

1. Ecoregion
2. States, Functional Groups, Transitions, and Tools
3. Reference Areas
4. Evaluation Matrix (Scorecard)

2 Step 2: On-Farm Monitoring

3 Step 3: Regional & Global Quality Assurance

1. ECOLOGICAL REGIONS (ECOREGIONS)

The areas covered by EOV will be separated into broad ecological regions, defined as: areas that contain characteristic geographically distinct assemblages of natural communities and species. The biodiversity of flora, fauna and environments that characterize an ecological region tends to be distinct from that of other ecological regions. Ecological regions are the result of climate, geology, and landforms. They have a defined degree of brittleness and therefore have differential responses to management tools. In order to make comparisons between operations, differences between ecoregions must be taken into account.

The ecological region is selected based on an ecological map that is widely accepted by scientific literature. EOV uses Level III Ecoregion maps coordinated by the Savory Institute Quality Assurance team globally.

EXAMPLES OF ECOREGION MAPS

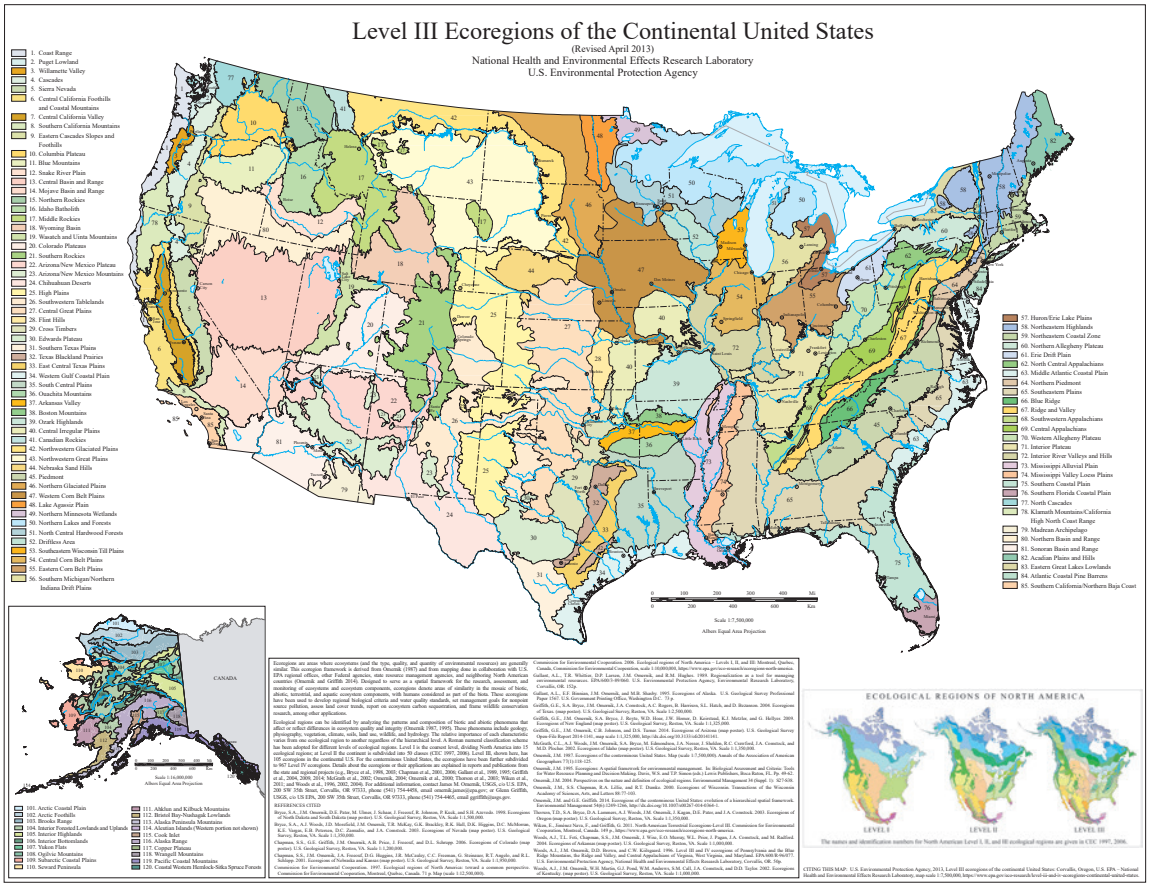


Image source: www.epa.gov

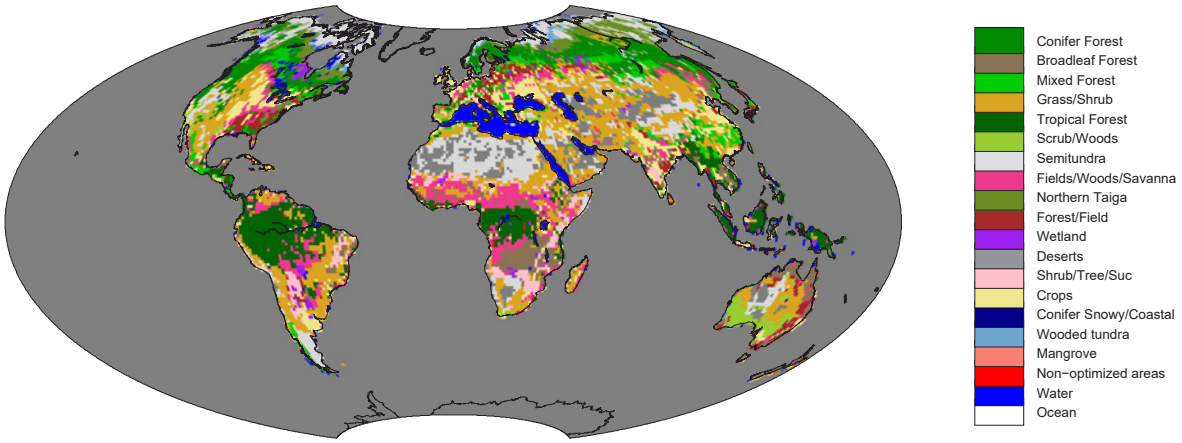


Image source: www.noaa.org

2. STATES, FUNCTIONAL GROUPS, TRANSITIONS, AND TOOLS

After the ecoregion has been defined, the Hub Verifier seeks to understand each region's uniqueness and human influence through past management. This information is necessary to articulate the functioning of the ecological region and to recognize the challenges for regeneration of grasslands and biodiversity. State and transition models are relevant for this purpose. The Hub Verifier will review if there are previous publications on this subject, and will proceed as follows:

A. Define/revise states in the ecoregion

B. Define/revise which functional groups of perennial plants are relevant for each state in the ecoregion

   I. Warm season grasses

   II. Cool season grasses

   III. Forbs/Legumes

   IV. Contextually desirable shrubs and trees

   V. Contextually desirable rare species (not endangered)

   VI. Contextually undesirable species

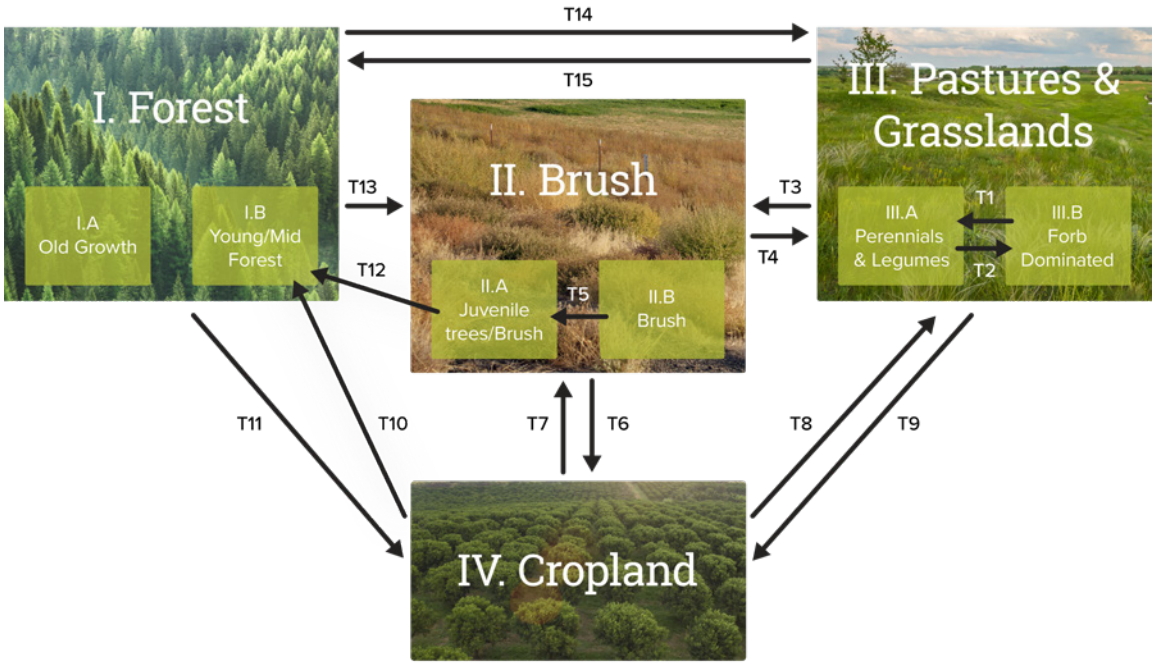
C. Define/revise possible transitions between the states in the ecoregion

D. Define/revise how tools promote transitions between states in the ecoregion

This information is then used to compile a State and Transition Catalogue for that ecoregion. The Catalogue summarizes the possible states of vegetation, functional groups of plants in each state, possible transitions between states, and the tools and events that promote change of states for the ecoregion. The State and Transition Catalogue shows

the extent of comprehensive changes in soil and vegetation and the effect of human management and different tools to promote or avoid transitions.

SIMPLIFIED STATE & TRANSITION MODEL



T1. Partial rest or over grazing of perennials

T2. Holistic Planned Grazing, animal impact, herd effect, Technology, Labor & Money, and Human Creativity

T3. Rest, Partial Rest or over grazing of perennials, repeated fires

T4. Animals such as goats to manage brush, Holistic Planned Grazing, animal impact, herd effect, Technology/ hand and machinery clearing, Labor & Money, and Human Creativity

T5. Rest, partial rest

T6. Technology/clearing/cultivation, Labor & Money, and Human Creativity

T7. Rest, partial rest

T8. Technology/clearing/cultivation, Labor & Money, and Human Creativity

T9. Holistic Planned Grazing, animal impact, herd effect, Technology, Labor & Money, and Human Creativity

T10. Technology/planting, Labor & Money, and Human Creativity

T11. Technology/logging/cultivation, Fire, Labor & Money, and Human Creativity

T12. Rest

T13. Technology/logging/planting, Fire, Labor & Money, and Human Creativity

T14. Technology/logging/cultivation, Fire, Labor & Money, and Human Creativity, Holistic Planned Grazing, animal impact, herd effect

T15. Technology/planting, Labor & Money, and Human Creativity

3. REFERENCE AREAS

Reference areas are the best-known expression of biodiversity, site stability, and ecosystem function for a given ecoregion and/or a specific state in an ecoregion. Reference areas are the closest example of the desired future resource base in a particular environment. It must be noted that the concept of reference areas is dynamic, as proper management of land bases can generate new reference areas, and change the parameters of what can be achieved. Reference areas are established to create a benchmark and are the basis to set an evaluation matrix or Scorecard of leading ecological indicators for the specific ecoregion.

Reference areas are located in relevant states of an ecoregion using local knowledge, satellite imagery, information from scientific advisors, practical experience, and visual appraisal. At least one (1) Long Term monitoring site will be installed at each reference area and read according to EOV Long Term Monitoring Protocols.

4. EVALUATION MATRIX (SCORECARD) FOR ECOLOGICAL HEALTH INDEX (EHI)

The Evaluation Matrix or Scorecard is a contextually relevant set of leading ecological indicators. Farms and ranches in the ecological region are then monitored using the Scorecard and receive an Ecological Health Index (EHI) score that is calibrated to the ecoregion.

The EHI score serves as an aggregated measure of ecosystem health. It is based on ecological indicators associated with the four ecosystem processes – water cycle, mineral cycle, energy flow, and community dynamics. Some of the ecological indicators are absolute, and some of them are calibrated relative to each ecological region.

Calibration is needed for certain ecological indicators to account for differences related to the degree of brittleness of an area and its potential.

To calibrate an Evaluation Matrix, generic descriptors for the ecological Indicators are reviewed by Master Verifiers and the Hub Verifier relative to the reference area in the region and their expertise of ecoregion variability. The indicator descriptions on the Scorecard are adjusted for the characteristics of each ecoregion.

Photo credit Judith Crispin, with permission

1 Part 1: Regional Hub Set-Up

2 Part 2: On-Farm Monitoring

Performed by Accredited Hub Verifiers and Accredited Monitors

ON-FARM MONITORING INCLUDES THE FOLLOWING FIVE STEPS:

1. Land Base Mapping
2. Farm Monitoring Plan
3. Short Term Ecological Monitoring / Ecological Health Index (EHI)
4. Long Term Ecological Monitoring
   - A. Evaluating Long Term Ecological Monitoring Site—Plants and Soil Surface
   - B. Evaluating Long Term Ecological Monitoring Site—Soil Health
5. Data Processing and Reporting

3 Step 3: Regional & Global Quality Assurance

1. LAND BASED MAPPING

Mapping is an essential first step in the monitoring process to 1) assist in planning of Short and Long Term ecological monitoring, 2) assess resources under management, and 3) identify states and quantify their area.

Mapping can easily be done utilizing the Savory EOV Platform or other mapping programs as well as paper maps. All maps should include the following:

A. Houses, facilities, useful reference points, roads, water sources, directional arrow

B. Paddock information including fences, gates, and paddock names/codes

C. Vegetation units and location of various states for ecoregion

D. Once selected, Long Term and Short Term monitoring sites must be identified on maps

This is done by the farmer in collaboration with a Savory Hub Verifier.

2. FARM MONITORING PLAN

A farm monitoring plan determines the number and location of both Short and Long Term monitoring sites. This plan is designed by the Hub Verifier with the farmer to ensure monitoring sites are good representation of the predominant ecological characteristics of the land base.

A. Short Term Ecological Monitoring Sites

Short Term monitoring requires observation during the grazing season across each paddock at multiple Short Term ecological monitoring sites. Multiple monitoring sites are established and observed varying with the size and heterogeneity of the land base. The number and location of these sites is determined by the Hub Verifier. At each site, an aggregate of leading ecological indicators is evaluated every year. The Short Term monitor will follow the scorecard that has been calibrated to the ecoregion by the Hub Verifier when analyzing the ecological indicators. This provides a statistically robust set of data points that represent the overall trend of Leading Indicators in a land base, informing management and allowing for proactive adjustments if needed.

B. Long Term Ecological Monitoring Sites

A minimum of three Long Term monitoring sites is required on each farm or landbase. This number increases according to the total area. The Hub Verifier will define the number, type, and location of Long Term ecological monitoring sites according to the size and heterogeneity of the land base. The Long Term monitoring sites on

an operation shall be areas representative of the landbase and reflect the predominant condition.

Long Term ecological monitoring sites provide objective, statistically robust data, composed largely of Lagging Indicators.

3. SHORT TERM ECOLOGICAL MONITORING / ECOLOGICAL HEALTH INDEX (EHI)

Short Term ecological monitoring focuses on Leading Indicators across the landbase and gives the right information to inform necessary management adjustments and verify ecological health trends on a yearly basis. To be effective in portraying the state of the landbase and allow frequent observations, monitoring is kept simple, inexpensive, and quick, yet scientifically robust.

Photo credit BTBETTY

Each sampling site is observed and Ecological Indicators listed on the Ecological Health Matrix are assessed. The accredited monitor walks the landbase, preferably with the farmers, and works through the indicators comparing visual observations with the options offered by the scorecard, and assigns the corresponding score to each indicator.

The Ecological Health Index (EHI score) is the sum of the scores for each indicator. The final value can range between -100 and +130 points.

Ecological Health Index evaluation is easy to learn, meaningful, inexpensive, and fast to apply (requiring about five minutes per checkpoint). Producers and professionals can learn to apply EHI in a two-day practice, getting to coherent results that are less than 10 points of standard deviation.

Ecological Health Index scores help to position one site in a linear departure gradient from the desired future resource base or reference area. Landscape function indexes can be derived from the indicators to evaluate individual ecosystem processes, water cycle, mineral cycle, energy flow, and community dynamics.

Short Term monitoring includes forage quantity and quality assessment, as a routine practice to inform stocking rate decisions and non-growing season grazing planning. Total amount of animal-days or forage availability at the end of the growing season is a key performance indicator of both regeneration, as it correlates with forage productivity, and animal production, as more forage allows higher stocking rates and higher individual performance.

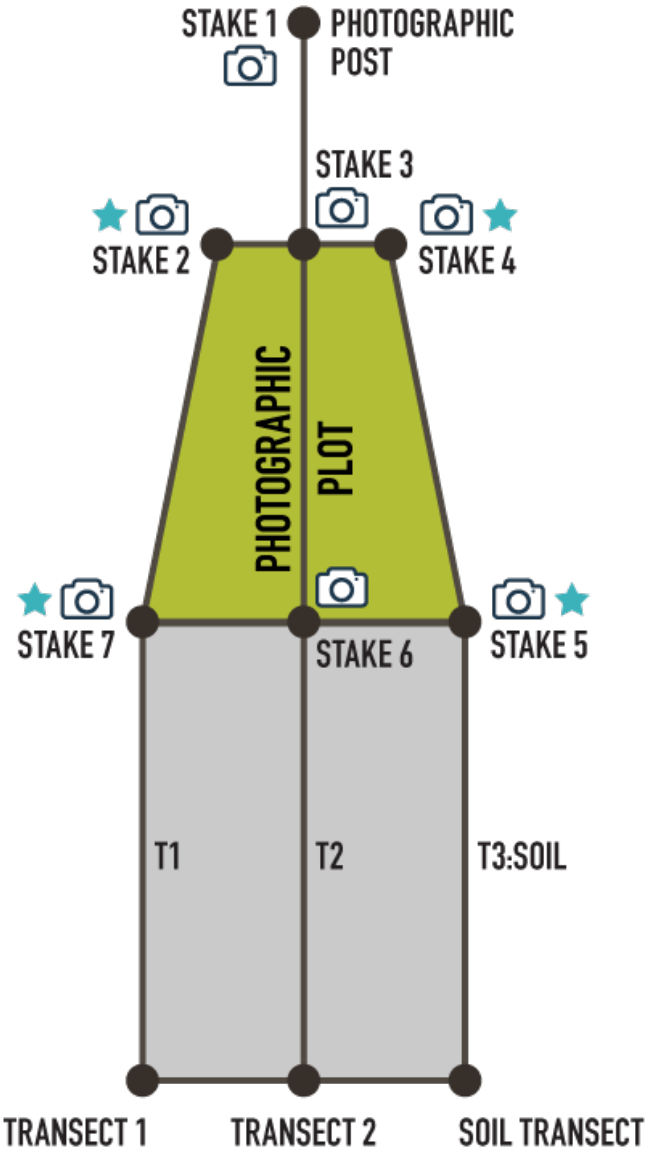
4. LONG TERM ECOLOGICAL MONITORING

Long Term ecological monitoring begins with the establishment of the landbase baseline and is then repeated every 5 years. Photographic plots may be checked yearly along with the Short Term monitoring. This Long Term monitoring tracks changes over time using objective and scientifically sound monitoring methods. Long Term ecological monitoring is important to detect structural changes of the landbase and track the functionality of the ecosystem processes. Such changes cannot be described by the Short Term ecological monitoring attributes as the traits monitored in the Short Term fluctuate with weather and use and may not reflect important changes in the regeneration status of the landbase. Long Term monitoring is largely comprised of Lagging Indicators.

Photo credit Judith Crispin, with permission

EOV's Long Term Ecological Monitoring Protocol consists of photographic plots and line transects. Photographic plots are inexpensive, easy to install, and generate valuable information to track structural changes in soil and vegetation. Line transects have been designed to maximize the information obtained for the least cost of monitoring. The information derived from transects yields high quality data that shows the state of the ecosystem processes and their trends. An aggregation of data from simplified transects can be published in any scientific paper, as they are based on sound, widely accepted criteria and methodologies.

LONG TERM MONITORING SITE DIAGRAM



POINTS WHERE PHOTOS ARE TAKEN

LOCATIONS FOR SOIL SAMPLING

A. Evaluating Long Term Ecological Monitoring Site: Plants and Soil Surface

Each site includes a photographic plot and three transects.

I. Transect 1 & 2: location for evaluating the Plant Composition/Soil Cover using line Point and Flexible Area Measurement which provides data regarding:
   a. Bare Ground Cover
   b. Litter Cover
   c. Foliar Cover of Perennial Plants by Species
   d. Cover Percentage by Functional Groups
   e. Biodiversity Indicators such as Species Richness and Shannon-Wiener Index

II. Transect 3: location for evaluating Ecological Health Index (EHI) score on a quantitative sampling. A reading of 15 indicators from the Evaluation Matrix (Scorecard) is taken in 10 quadrants along a 100 foot transect along with photographs.

III. Data is recorded from each transect and uploaded to the Savory Global EOV Platform. Data is analyzed in the context of the ecoregion and a report is prepared by Hub Verifier in each region. Audits are determined.

IV. Regional data is sent to Quality Assurance for global analysis and additional audit planning.

V. Results for each land base are sent to producer with follow-up if necessary.

B. Evaluating Long Term Ecological Monitoring Site: Soil Health

Current soil health protocols include:

i. Water Infiltration in the Field

ii. Soil Carbon

iii. Soil Equivalent Fixed Mass

iv. Soil Biology & Soil Organic Matter
   a. Method 1: Soil health and biology derived from the Haney test
   b. Method 2: Standard Soil Health Analysis Package—Cornell University

I. Water Infiltration in the Field

Protocol for water infiltration is based on the *NRCS (1999)*.

II. Soil Carbon

a. Sample locations are selected in the Long Term monitoring sites, approximately 5 meters from transect posts. Two cores are taken from each of four sampling locations around the photographic plot at a depth of 0-30 cm. This is divided into three depths (0 to 10, 10 to 20 and 20 to 30 cm) and mixed within each depth. Prior to transferring to the lab, each sample is mixed thoroughly, passed through a 2 mm soil sieve, transferred into paper bags (or trays) and air dried at room temperature.

b. All Hub monitoring sites will have additional samples at 1 m of depth to help establish correlations between soil and surface indicators.

c. The soil samples from each sampling location at each depth will be analyzed individually for total carbon. Total carbon will be estimated using dry combustion procedure as it accounts for total carbon, charcoal, inorganic carbon, and some fraction of organic compounds. Subsamples of each air-dried sample will subsequently be ground for total carbon analysis.

III. Soil Equivalent Fixed Mass

Our protocol is adjusted from the protocol of Wendt and Hauser et al., (2013) and from the work of Dr. Rebecca Ryals, University of California Merced.

IV. Soil Biology and Organic Matter

A. Soil Biology—Method 1

The overall assessment of soil health and biology is derived from the Haney test, developed by Dr. Rick Haney, USDA ARS. These measured indicators of soil health can give inference on next steps to improve soil health.

i. *Soil Microbial Activity*
The Solvita 1-day CO2-C test is performed. Data is recorded in EOV data platform for access to Master Verifier and QA.

ii. Water Extractable Organic Carbon and Nitrogen (WEOC and WEON
WEOC and WEON represent the available nutrients (mineralization) in the soil that feed the microbes.

iii. Haney Soil Health Calculation
(for more information, visit: *www.wardlab.com/haney-info.php*)
Soil health calculations can range from 0-50. Generally, soil health scores should be above 7.

B. Soil Biology—Method 2

Standard Soil Health Analysis Package from Cornell University is used. The test includes Soil pH, Organic Matter, Modified Morgan Extractable P, K, micronutrients, Soil Texture, Active Carbon, Wet Aggregate Stability, Soil Respiration, Autoclave-Citrate Extractable (ACE) Protein Test, Available Water Capacity. The test measures indicators of the water cycle including wet aggregate stability and available water capacity, water infiltration (Part I above) is not needed. Further, we also obtain soil organic matter from these samples as well, an additional indicator of soil carbon and soil microbial life.

5. DATA PROCESSING AND REPORTING

All field data collected on reference areas and farms by accredited monitors and Hub Verifiers is uploaded to the Savory Global EOV Data Platform. GPS coordinates, photos and specific comments will be also hosted on the digital platform. This platform will be able to import farm production data and management plans crucial to inform outcomes and opportunities for improvement or learning.

It is the responsibility of the Accredited EOV Short Term Monitor or EOV Hub Verifier to add the data to the platform in a timely and accurate manner according with local conditions and connectivity. A results report is then given to the producer and opportunities for mentoring are outlined if progress is not satisfactory.

Photo credit BTBETTY

1 **Part 1: Regional Hub Set-Up**

2 **Part 2: On-Farm Monitoring**

3 **Part 3: Regional & Global Quality Assurance**

Performed by Global QA team, Master Verifiers and Hub Verifiers

EOV QUALITY ASSURANCE

EOV is supported by sound quality assurance mechanisms. Each monitoring activity is carried out by accredited Verifiers and Monitors with deep knowledge and experience in the given regional context. Data uploaded onto the EOV platform is reviewed and analyzed by the regional Hub Verifier and the Global Network of Master Verifiers. On an annual basis, an average of 5% of all participating farms are subject to an on-site audit. The selection of farms to be audited are a result of: data analysis (any farm with dubious or inconsistent data relative to the regional trends will be audited as this is an opportunity for learning); Monitors (if the Monitor of the Short Term indicators is the owner of the farm, then there is more likelihood that this farm will be audited); random selection (the rest of the sample will be made up by a random selection of sites every year). Given the close relationship of Hubs to the producers they serve and support, and the ability to efficiently analyze the large set of data from the whole region through the digital platform, the need for farm audits is largely decreased.

SAVORY INSTITUTE (SI) PROFESSIONAL ACCREDITATIONS FOR EOV

EOV Monitors:

There are two categories of EOV Monitors: Short Term and Long Term. Both categories are represented by individuals with proven experience in rangeland and pasture management in the regions they are serving. They are trained and qualified to provide independent annual Short Term and Long Term monitoring services for Savory Hubs and their producer networks. Farm and ranch operators may be trained to monitor the Short Term sites on their land base, but can not conduct the Long Term monitoring.

The training is designed as a combination of hands-on and webinar sessions, and provides a deep understanding of the ecological indicators involved in the protocol and their assessment process, the scientific data collection mechanism for each monitoring technique (Short Term and Long Term) and associated methodologies, and how to make appropriate data records (including photographic records) in the digital platform.

Accreditation for both Short Term and Long Term monitors is renewed annually and involves continued education.

Hub Verifiers:

Hub Verifiers are experienced land managers, and practitioners of Holistic Management and regenerative agriculture. It is a prerequisite that they are accredited as Field Professionals with the Savory Institute, to ensure a thorough and holistic understanding of the effectiveness of ecosystem processes and health. Hub Verifiers receive additional training in the EOV protocol to ensure the development of consistent, robust and repeatable monitoring practices across the globe. Hub verifiers play an important quality assurance role. Hub Verifiers serve 4 primary roles:

A. Supporting the preparation of their Hub to engage in EOV set-up for producers, including defining ecoregions, functional groups, states, and transitions, establishing reference areas, and calibrating the Evaluation Matrix Scorecard for each relevant state in each ecoregion. This is done with guidance and support from Master Verifiers.

B. Set up of Long Term monitoring sites for farmers involved in the Land to Market program.

C. Conducting the review and analysis of the data records submitted to the centralized database in the EOV digital platform to ensure the data is 'clean'. Data will be reviewed for soundness including: has it been recorded correctly, does it make sense for the region and compared to previous monitoring activities, and any significant issues flagged. Hub Verifiers then create the report for the farmers and bestow the verification or schedule audits as appropriate.

D. Training and QA of Short Term Monitors in their regions

Training for Hub Verifiers includes:

A. Course 1: EOV Long Term and Short Term Preparation and Monitoring, taught by EOV Master Verifier

B. Course 2: EOV Verification, taught by EOV QA Professional

C. Accreditation as SI Accredited Professional—Field Professional level

Master Verifiers:

These are highly experienced land managers, Savory accredited Field Professionals and practitioners of Holistic Management and regenerative agriculture in an extensive range of ecological settings. Master Verifiers are responsible for training Hub Verifiers and facilitating the set up of the Hub regions with their reference areas. These individuals provide Quality Assurance and support for the network of Hub Verifiers worldwide. This growing global body contributes to the ongoing evolution of the EOV protocol.

Global Quality Assurance (QA):

A QA Team (Ovis 21 and Michigan State University to begin) will oversee quality control for EOV globally. All the global data aggregated by Hub Verifiers around the world will be analyzed,

correlations established, and lessons learned. If there is data that looks inconsistent or dubious, the specific Hub Verifier and verification process will be audited and issues addressed. All lessons and insights will be shared with the Savory Network, and will inform Network communications with the public and media, market partners, policy makers, and others. Additionally, data will be published in scientific peer reviewed papers by interested research institutions, advancing the credibility of the work globally.

All Hubs are encouraged to partner with local research institutions and scientific bodies to add layers of monitoring relevant to their context. Many Hubs are partnering with Universities, conservation groups, wildlife groups, and others interested in measuring the impact of management on target indicators. This adds transparency, robustness and additional data to the learning platform and network.

EOV FAQs

What is Ecological Outcome Verification (EOV)?

The EOV is the scientific methodology that measures and trends ecological outcomes on participating producers' land. It can be considered the empirical backbone of the Land to Market program.

What are the origins of EOV?

The EOV has been built on Savory's Holistic Management (HM) comprehensive biological monitoring methodology. It has been taken to a whole new level of scientific rigor by working and collaborating with scientists and research institutions that understand the importance of this work for climate, water, and food security, and for the ecological integrity of grasslands worldwide.

What does EOV measure?

EOV assesses key indicators of the effectiveness and health of ecosystem processes—criteria such as soil health, biodiversity and ecosystem function (water cycle, mineral cycle, energy flow and community dynamics).

How was EOV developed?

Each Hub in the Savory Global Network is a contributing organization and their producer and scientific networks are constantly providing guidance and input. Ovis 21, a Savory Hub, has led the creation of the scientific methodology, in collaboration with scientists at Michigan State University (MSU), another Savory Hub, and with input from scientists and from research institutions around the world. Pablo Borrelli of Ovis 21 and Dr. Jason Rowntree of MSU and are taking the lead in aggregating and analyzing the emerging data from the participating Hubs and their producer networks. They will be joined by other research institutions and scientist groups in our global Network with the goal of creating one of the largest global databases for monitoring grassland health and associated ecosystem services that will inform the public, policy makers, and markets.

How is EOV different from other certification programs?

EOV is designed to engage farmers and ranchers around the world in continual learning and support toward their enduring success both as business leaders and as land stewards. To that end, the key difference between EOV and other certification programs is that it is driven by producers, from the bottom up, with outcome-based benchmarks, rather than from the top down, with practice-based benchmarks. The goal of Land to Market is not to compete with other certification programs, but rather to add value to them, by providing producers with the critical tools and knowledge they need to affect a profound improvement in ecological systems around the world for years to come.

How can I get involved as a farmer or rancher?

Producers engage with their regional Savory Hub, which deploys a Verifier to visit their property and begin the process of setting the farm's baseline and collecting trended data. The Verification is repeated and renewed annually, with Long Term monitoring occurring every five years. If the EOV is received, the producer will be entered into the Land to Market Verified Regenerative Supplier Roster, which affiliated brands, retailers and end consumers will access for their sourcing needs. Producers not receiving EOV (ecological outcomes trending negatively in the context of their region) may continue to engage with their regional Hub for training and implementation support. In short, the EOV is designed to invite the producer into a shared process of continual improvement in community with their peers. Please see the *onboarding section* of this document for more information.

What product categories does EOV apply to?

Currently the EOV protocol is being deployed in land bases of livestock operations, namely meat, dairy, wool and leather. Future phases of the program may incorporate land bases dedicated to raising other products or offering other services such as ecosystem services or ecotourism.

How much does it cost to participate in EOV?

Each regional Savory Hub sets up their own pricing structure for baseline and annual monitoring visits, and fees for participation are negotiated with and paid directly to the regional Hub by the participating farmer or farmer group. Baseline and Long Term monitoring visits typically involve 1-2 days of work by a Hub Verifier. Short Term monitoring will depend on the size of the farm, but typically will take one to two days.

What if I don't have a regional Hub in my area and I want to participate?

Savory Network Hubs are the program's primary mechanism to evaluate and verify new producers. However, if your operation is not near an existing Hub we have a network of Master Verifiers and Accredited Field Professionals who may be able to work with you. Please *contact us via our website* and we will put you in touch with the appropriate representative.

I don't see my question answered here. Where can I go for more information?

Please contact Savory Institute's Managing Director of the Land to Market Program, Victoria Keziah, for further information at *vkeziah@savory.global*.

GLOSSARY OF TERMS

Ecological Indicators: Attributes of soil surface and vegetation that reveal the effectiveness of ecosystem processes. They are used on the Evaluation Matrix (Scorecard) to evaluate Ecological Health Index (EHI).

Ecological Health Index (EHI Score): The numeric score that EOV-enrolled land receives after completion of data gathering and filling of the regionally calibrated scorecard or Evaluation Matrix (Leading Indicators only). Scores show the numerical distance to the potential of ecosystem processes of the ecoregion.

Ecological Outcome Verification (EOV): The EOV is the scientific methodology that measures and trends ecological outcomes on participating producers' land. It can be considered the empirical backbone of the Land to Market program.

Evaluation Matrix (Scorecard): A matrix of 15 biological indicators (rows) and five possible situations (columns) of each indicator. Determines the score for a particular site in a way that is contextualized for a specific ecoregion.

Long Term Ecological Monitoring: Baseline monitoring in year 0 and repeated every five years. This includes a photographic plot, two plant composition/soil cover transects, and one soil surface transect, along with soil health measurements. Sites are set up for ecoregion reference areas and for Long Term monitoring on each landbase. This ties the Long Term monitoring soil surface transect 3 to the Short Term monitoring using the same Ecological Indicators listed on the Ecological Health Matrix (Scorecard).

Short Term Ecological Monitoring: Done across each landbase annually in multiple paddocks. Estimates Ecological Health Index per paddock, and a weighted average for the farm. The latter reflects the overall result of EOV verification of the farm.

Ecoregion: Area that contains characteristic, geographically distinct assemblages of natural communities and species. The biodiversity of flora, fauna and environments that characterize an ecological region tends to be distinct from that of other ecological regions. Ecological regions are the result of climate, geology, and landforms. They have a defined degree of brittleness and therefore have differential responses to management tools.

Reference Area: Long Term ecological monitoring site in any land base (within or outside producer network) that is the best known expression of biodiversity, site stability, and ecosystem function for a given state in an ecoregion. It may or may not be inside the landbase being verified. These areas are benchmark points for the relevant states for the rest of the Long Term

ecological monitoring sites in the land bases in that ecoregion. The concept of reference areas is dynamic, as proper management can generate new reference areas and change the parameters of what can be achieved.

Leading Indicator: Leading Indicators are those that usually change before others, and therefore have some predictive value about the direction of changes. Leading indicators are very useful for documenting and influencing management and are largely covered in Short Term ecological monitoring.

Lagging Indicator: Lagging Indicators which are largely captured in Long Term ecological monitoring are outcome indicators. Unlike Leading Indicators, when we know Lagging Indicator values there is little chance to make corrections quickly. Evaluating these Lagging Indicators can be expensive and require an Accredited EOV Hub Verifier to be performed. However, the Lagging Indicators provide us with strong scientific validation on the function of the ecosystem processes.

Hub Verifier: A Hub Verifier is an Accredited Professional at the Field Professional level with Savory Institute and working in close association with the Hub in a region. They are trained in EOV to be able to do the preparatory work in an ecoregion including understanding and diagramming the states of land that can occur in an ecoregion, the ways to transition between states, the functional groups of plants in that ecoregion, and the development of the EHI Scorecard for the ecoregion. They also perform verification and auditing of monitoring done by EOV Monitors.

Master Verifier: Master Verifiers are a select group involved in the further development and refinement of the EOV methodology. Master Verifiers provide training to Hub Verifiers.

State: States are alternative assemblages of functional groups and plant species, that determine physiognomy, soil attributes, and ecosystem function inside an ecoregion. For example, grassland, grassland/shrubland, shrubland, cropland, savanna.

Functional Groups: A set of plant species that share the same type and ecological role. The relative proportion of functional groups of plants determine the state of the land. This includes warm season grasses, cool season grasses, forbs/legumes, shrubs, trees.

Transitions: Transitions represent the change of vegetation and soil from one state to another. If grasslands switch from a more valuable state to a degraded one, that transition is undesirable. Conversely, land regeneration could be defined as the management of transitions to create the most vibrant and effective state in terms of ecological health and productivity. Transitions are always caused by the intended or accidental use of tools: technology, fire, rest and living organisms. A transition catalogue describes how each tool promotes transitions.