
AVANA RETREAT VIETNAM

BIOCULTURAL HEALTH REPORT - JULY 2025



EXECUTIVE SUMMARY

JULY, 2025



Avana Retreat occupies a singular position among Guardians of Earth's Nature Realms.

Ranked in the top 1 percent of the "Eco-Resorts" category—out of 64 resorts currently tracked—and in the top 4 percent of all realms network-wide, Avana exemplifies a mature biocultural system where human communities and tropical forest ecosystems thrive in mutual interdependence.

In May, members of the Guardians of Earth team visited Avana Retreat to conduct on-site training in biodiversity and cultural monitoring. We worked directly with staff and community participants in surveying activities and witnessed first-hand Avana's deep commitment to biocultural health—both in practice and in spirit.

Over the past year, Avana's BioScore rose from 4972.12 to 6793.94, a 24.6 percent increase. This growth reflects intensified research effort, elevated community stewardship, and enriched storytelling that together strengthen ecological resilience and cultural continuity.

A handwritten signature in black ink, appearing to read 'Andrew Robinson'.

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Great Mormon Butterfly (*Papilio memnon*), recorded by the Avana Retreat staff.

INTRODUCTION

The concept of biocultural health recognizes that the well-being of a landscape cannot be disentangled from the human values, traditions, and practices that shape—and are shaped by—that environment.

At Avana Retreat, three indigenous ethnic groups maintain sacred forests, agroforests, and ritual sites whose preservation depends on sustained local engagement. This report foregrounds metrics of awareness, connectivity, and biodiversity, rather than treating ecology and culture as separate domains.

ABOUT GUARDIANS OF EARTH (GoE)

Guardians of Earth is a web-based nature restoration platform that leverages community-driven data and market mechanisms to motivate the restoration and sustainability of biocultural landscapes worldwide.

At its core is the Nature Realms program: a globally distributed network of mapped sites—each defined by a geographic polygon—where on-ground observers record biodiversity data and share cultural narratives. The data is transparent, verified, and publicly available through GuardiansofEarth.io/Avana.

Every recorded datum is verified by a blind peer review system of experts, and contributes to a site's BioScore, a dynamic metric of ecological and cultural health.

BioScores are converted into BioCultural Units (BCUs)—a standardized conservation currency—that can be staked, traded, or harvested within the GoE marketplace to fund on-the-ground restoration, support local stewards, and incentivize ongoing engagement. Through real-time dashboards, leaderboards, and impact reporting, Nature Realms fosters transparent, participatory stewardship of both nature and the human traditions that sustain it.

THE AVANA RETREAT VIETNAM

Avana Retreat is nestled within the mountainous Phu Tho Province in north Vietnam. About 33% of the flora of Northern Vietnam are endemic.

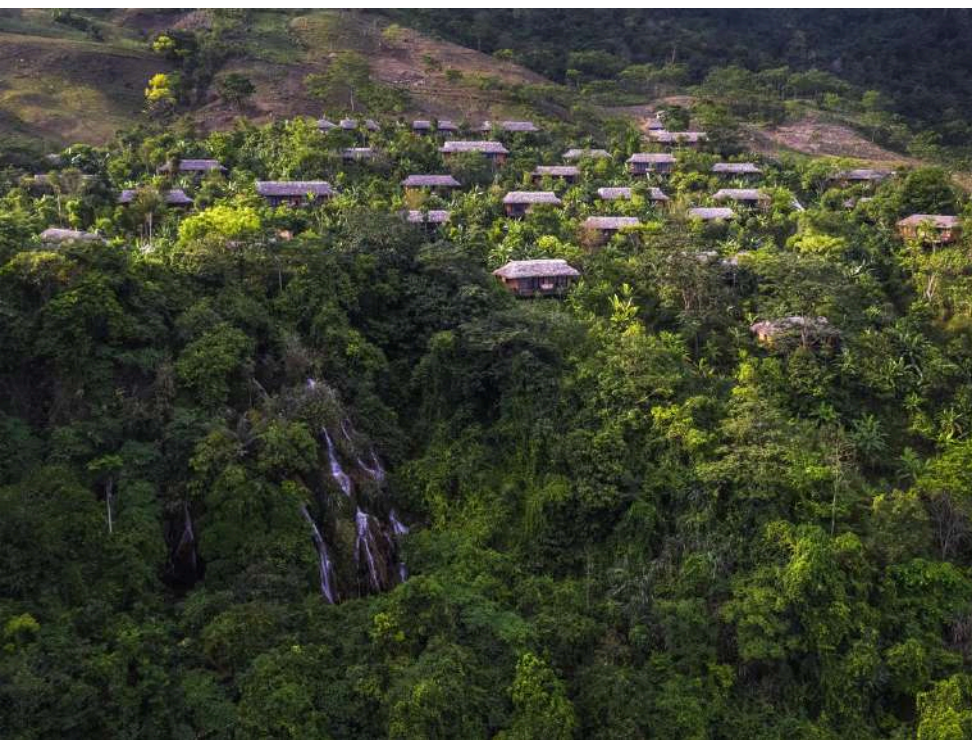
A total of 1539 species have been recorded within 50km of Avana Retreat of which 21 are evaluated as Critically Endangered and 29 are evaluated as Endangered. 138 species are considered Data Deficient.

Vietnam has been rated as the sixteenth most biologically diverse country in the world: 2,000 species of plants, 276 species of mammals, 828 species of birds, 180 species of reptiles, 80 species of amphibians, 472 species of freshwater fish, and many thousands of invertebrate species.

Beginning with 37 acres of depleted land, Avana Retreat has transformed approximately 24.8 acres into mixed plantation lowland forest including bamboo forests while restoring the remainder to traditional irrigated rice paddies and verdant urban spaces.



Situated at 600m elevation, Avana Retreat occupies the subtropical - tropical lowland rainforest ecosystem in north Vietnam.



COMMITMENT TO CULTURE

The Avana Retreat expresses a strong commitment to biocultural health and connecting people to the local environment.

The role of Guardians of Earth is to regularly verify this commitment through data collected by - and transparently available to - people on the ground.

Some examples of this commitment:

Daily Conversations with Locals

Avana's leadership engages regularly with community members—both informally on-site and at forums like the Asia Sustainable Tourism Forum. With 90 percent of staff drawn from Thai, H'Mong, and Muong ethnic groups, these dialogues build local capacity (language, hospitality skills) while reinforcing cultural identity and collaborative stewardship.

Everyday Work That Sustains Local Communities

All resort construction and décor draw on indigenous building methods and materials—mud plaster, palm-leaf roofing, rattan and bamboo weaving—taught by local artisans. This approach preserves traditional crafts, minimizes environmental impact, and embeds cultural knowledge directly into the built environment.



Plastic-free lifestyle

Avana Retreat has eliminated single-use plastics across the resort—from replacing plastic keycards with durable mechanical keys to installing refillable glass and stainless-steel dispensers for toiletries and drinking water. These low-tech, plastic-free solutions cut waste, prevent pollution, and honor both environmental values and cultural traditions by demonstrating how simple, community-driven choices can deliver big sustainability wins.



Architecture, Culture & Tribute

With the idea to honor the architectural highlights of the natives, 36 bungalows and villas of Avana Retreat are constructed with the guidance of craftsmen from three minority groups of Mai Chau. Every corner, every inch, is imbued with the cultures and identities of the natives.

THE DATA

The data collected over the last year at the Avana Retreat demonstrates robust field activity—averaging nearly 20 observations and 4 stories per participant—indicative of deep commitment to biocultural awareness and custodianship.

Species Observations: 387

Unique Species Recorded: 151

Expert Identifications Submitted: 524

Stories Submitted: 71

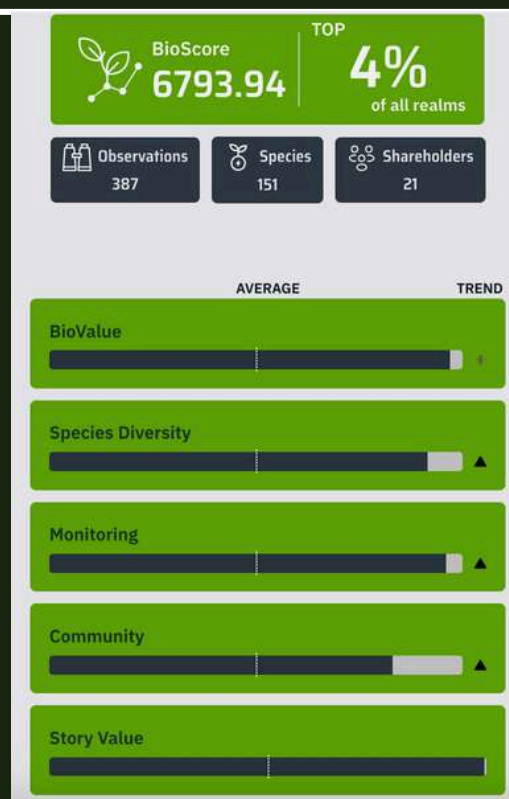
Community Participants: 21

Observations quantify each digital recording - multiple photos or single video - of a unique specimen of an organism logged by participants. Observations only record wild species, and the same species of organism cannot be logged more than once within 1km or 24 hours. **Out of the 780+ realms on Guardians of Earth, the Avana Retreat is in the Top 5% of all realms for observations.**

Unique Species represents a the number of unique species, verified by experts, to exist on the property. **The Avana Retreat is in the Top 10% of all realms for species diversity.**

Expert identifications ensure taxonomic accuracy and validate community contributions. Top experts also give each observation a 1-5 score based on how much it indicates the biodiversity health of the region (e.g. indicator species). That score represents the BioValue of the data. **The Avana Retreat is in the top 5% for BioValue of all realms.**

Stories are narrative accounts or cultural reflections tied to specific place within the realm - or to the realm as a whole. **The Avana Retreat is in the top 5% of all realms for stories.**



Community participants indicates the degree to which the property involves the local community in biocultural restoration. **The Avana Retreat is in the top 15% of all realms for community participation.**



THE BIODIVERSITY

Avana's 151 recorded species represent 74 percent of all taxa known from the broader Mai Châu region, a testament to systematic surveying and expert validation. An analysis of the 151 unique taxa reported at the Avana Retreat indicates the following.

Entomological Focus:

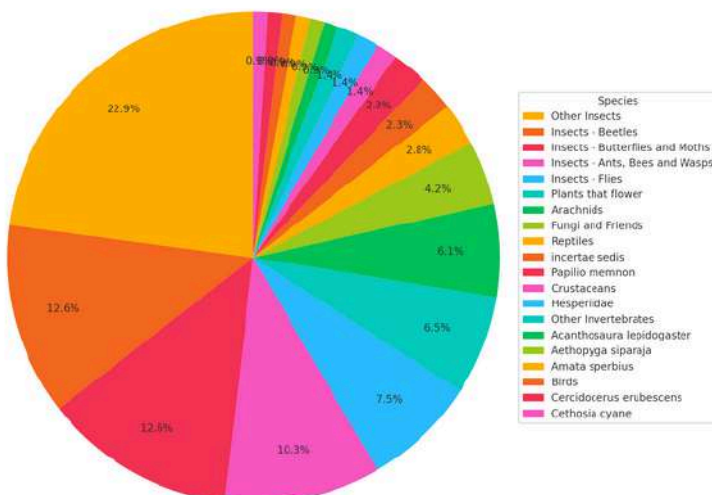
Insects overwhelmingly dominate Avana's biocultural dataset, reflecting both high insect diversity in the tropical forest and strong participant interest in entomology.

Underrepresented Taxa:

Groups like reptiles, birds, crustaceans, fungi, and plants are well documented but still account for fewer than 20% of counts collectively.

Actionable Insights:

1. Targeted Surveys for underrepresented groups (e.g., specialized herpetofauna, avifauna, fungi) could broaden the biocultural record and improve overall ecosystem understanding.
2. Storytelling Campaigns around rarer or culturally significant species (e.g., Atlas Moth, Mountain Crab, Dragontail Butterfly) may stimulate new observations and community engagement.



Most spotted taxa at the Avana Retreat

High scoring indicator species:

Several of the taxa recorded at Avana Retreat are widely regarded as **indicator species** in tropical forest ecosystems. In particular:

Scale-bellied Tree Lizard (*Acanthosaura lepidogaster*)

This arboreal lizard depends on intact, multilayered canopy and understory structure. Its presence signals good habitat connectivity and minimal forest degradation.



Yellow-backed Sunbird (*Aethopyga siparaja*)

As a nectar-feeding specialist, this sunbird indicates healthy, flowering understory and mid-story plant communities. A stable population reflects robust plant-pollinator networks.



Great Mormon Butterfly (*Papilio memnon*)

This large canopy butterfly requires undisturbed forest patches with host plants for its caterpillars. Its regular sightings point to sustained canopy health and plant diversity.



In addition, groups like Reptiles and Birds as a whole can also serve as indicators of ecosystem integrity when monitored systematically. Focusing targeted surveys on these species can help improve the Avana Retreat's ongoing habitat assessment.

TOP PLANTS



Ashoka Tree (*Saraca asoca*) is one of the oldest tree species at Avana Retreat—50-60 years. It's admired for its vibrant, fragrant orange-red blossoms and lush evergreen foliage. Sacred in Indian tradition, it symbolizes love, fertility, and the alleviation of sorrow. Its presence provides a tranquil, meditative atmosphere to the surrounding landscape.



Giant Crape-Myrtle (*Lagerstroemia speciosa*) captivates with its magnificent clusters of lilac-purple blossoms and smooth, decorative bark. Revered medicinally in Southeast Asia.



Bleeding Heart Vine (*Clerodendrum thomsoniae*) is cherished for its cascading clusters of bright crimson blooms emerging from white calyxes, symbolizing beauty and passion. It's popular ornamentally.



Cluster Fig Tree (*Ficus racemosa*) bears dense clusters of figs directly on its trunk, offering sustenance to diverse wildlife. Sacred in various Asian cultures, it symbolizes prosperity and longevity.



Yellow Flame Tree (*Peltophorum pterocarpum*) showcases brilliant golden-yellow flowers forming vibrant, fragrant canopies. Widely planted in urban areas, it provides shade and ornamental beauty across tropical regions.



Orchid Tree (*Bauhinia variegata*) is admired for its striking, fragrant orchid-like flowers. Native to Southeast Asia, it's often cultivated for ornamental and medicinal purposes.



Jackfruit Tree (*Artocarpus heterophyllus*) is celebrated for producing the world's largest tree-borne fruit, renowned for its sweet, tropical flavor and versatility. Native to South Asia, it's culturally and nutritionally valued.



Red Cotton Tree (*Bombax ceiba*) dazzles with vivid scarlet blooms atop spiny branches, heralding the arrival of spring. Symbolizing strength and resilience, it's revered across Asia for medicinal uses.



Vietnamese Ochna (*Ochna integerrima*) is prized for its vivid yellow blossoms that transform into glossy red sepals with black berries. It's culturally significant in Vietnam.



Mango Tree (*Mangifera indica*) delights with its sweet, juicy fruits and lush evergreen canopy. Native to South Asia, it's culturally treasured globally for culinary, medicinal, and symbolic purposes.

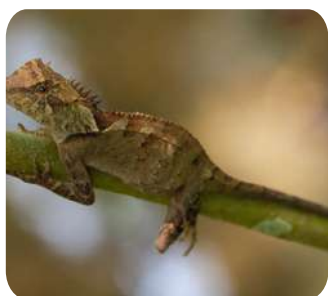
TOP ANIMALS



Little Spiderhunter (*Arachnothera longirostra*) is a nimble, slender-beaked bird, adept at extracting nectar from tubular flowers. Native to Southeast Asia, it is crucial for pollination in tropical forests. Its swift movements and cheerful calls make it a delightful sight in dense gardens.



Great Eggfly Butterfly (*Hypolimnys bolina*) is a striking species known for the male's bold, iridescent blue-white spots set against velvety black wings. Females display a wide variety of patterns.



Brown Pricklenape (*Acanthosaura lepidogaster*) is a striking forest lizard featuring prominent spines along its neck and back. Native to Southeast Asian rainforests, it blends into its surroundings.



Common Wanderer (*Pareronia hippia*) is an elegant butterfly displaying soft, sky-blue wings edged in black. It gracefully inhabits forest clearings and gardens, symbolizing freedom and transformation.



Vietnamese Mountain Crab (*Indochinamon* sp.) is a rare freshwater species found in cool, shaded streams of Vietnam's upland forests. It plays a quiet role in maintaining aquatic ecosystem balance.



Painted Jezebel (*Delias hyparete*) enchants with delicate white wings vividly edged in red, yellow, and black. Found fluttering gently through forests and gardens, it symbolizes vibrant elegance.



Dragontail Butterfly (*Lamproptera meges*) delights with elongated tails and translucent wings, resembling miniature dragons in flight. Often seen near streams, it's cherished for its unique flight pattern.



Great Orange Tip (*Hebomoia glaucippe*) dazzles observers with large, radiant white wings tipped boldly in vibrant orange. Frequently found in tropical gardens, it's an emblem of vivid beauty.



Asian Tramp Snail (*Bradybaena similaris*) is a small land snail known for its adaptability and widespread distribution. Often regarded as a pest, it nevertheless plays a role in nutrient cycling.



Green Drake (*Ephemera*) is a delicate mayfly famed for its fleeting adult life, lasting mere hours or days. Its synchronized mass emergence creates mesmerizing spectacles over freshwater habitats.

THE BIOSCORE AND BIOCULTURAL UNITS (BCUS)

BioScore is a composite score that reflects the biocultural health of a particular location. Both social and ecological indicators are included. Scores are compared relative to data from a broader region of 5x and 12.5x the size of the realm.

Data is analyzed by comparing conditions in the realm with surrounding areas that are 5 and 12.5 times the size of the realm, centered around it, to identify trends in biodiversity and human interaction with the ecosystem. This comparative intends to create a fairer baseline metric. (See addendum for complete details).

Over the past year, Avana Retreat's BioScore has risen from 5452.61 to 6793.94, an increase of 24.6 percent. Converted into BioCultural Units (BCUs)—where 1 BCU = 1 062 BioScore points on today's market --this growth represents a jump from approximately 5.4 BCUs a year ago, to 6.40 BCUs, today, underscoring substantial gains in ecological-cultural capital.

THE AVANA RETREAT HOLDS 6.4 BIOCULTURAL UNITS

- ONE BCU IS DEFINED AS 1 062 BIOSCORE POINTS.
- CURRENT BIOSCORE OF 6,793.94 TRANSLATES TO APPROXIMATELY 6.40 BCUS ($6\,793.94 \div 1\,062$).



What this means for Avana Retreat:

- Stronger Conservation Capital:** With 6.40 BCUs on record (up from 5.14), Avana has demonstrably increased its stock of validated biocultural knowledge, bolstering its case for impact funding and strategic partnerships.
- Enhanced Market Leverage:** Higher BCU reserves translate directly into greater ability to stake or trade units in the Guardians of Earth marketplace, unlocking resources for restoration projects and community programs.
- Validated Stewardship:** A 24.6 percent BioScore uptick reflects more frequent observations, identifications, and narrative submissions by both participants and experts—key indicators of a resilient stewardship network.
- Momentum for Growth:** Each additional BCU not only rewards past engagement but also fuels future contributions by incentivizing further data collection and storytelling, helping ensure Avana's biocultural health continues to strengthen.



TOP 1% OVERALL

Out of 64 resorts being monitored daily on GuardiansofEarth.io, the Avana Retreat has the highest BioScore and the most BCUs.

The Avana Team recorded this Indian wanderer butterfly (*Pareronia hippia*).



ALIGNMENT WITH GLOBAL FRAMEWORKS FOR NATURE RESTORATION

The Task Force for Nature-Related Financial Disclosures (TNFD)

TNFD organizes nature-related disclosure around four pillars: Governance, Strategy, Risk Management, and Metrics & Targets.

TNFD Pillar	Avana Retreat Findings
Governance	<ul style="list-style-type: none"> • Community Participants (21) and Expert Identifications (524) reveal clear roles and accountability in data governance. • Regular storytelling workshops and expert-led identifications exemplify participatory oversight.
Strategy	<ul style="list-style-type: none"> • A 24.6 % BioScore increase and growth from 5.14 → 6.40 BCUs demonstrates a deliberate, measurable plan to boost ecological and cultural capitals. • Recommendations (e.g. BioBlitz events, grant-linked BCUs) show forward-looking resource allocation.
Risk Management	<ul style="list-style-type: none"> • Monitoring of indicator species (e.g. Scale-bellied Tree Lizard, Yellow-backed Sunbird) provides early-warning signals of habitat degradation. • Diversifying taxa observations (plant, fungi, herpeto-fauna) reduces dependence on a single group and spreads
Metrics & Targets	<ul style="list-style-type: none"> • BioScore & BCUs function as standardized metrics for reporting nature impact—directly analogous to TNFD’s recommended quantitative disclosures. • Percentile rankings (top 1 %–15 %) align with the TNFD call for transparent targets against peer benchmarks.

The Kunming-Montreal Global Biodiversity Framework (GBF)

The GBF sets out 23 targets across five Goals (A–E). Below are key synergies with Goals C (Knowledge, Science & Technology) and D (Benefits Sharing & Participation):

GBF Target (excerpt)	Avana Retreat Evidence
Target 19: Enhance knowledge, science, and technology	<ul style="list-style-type: none"> • 524 expert IDs and 151 unique species demonstrate robust local science capacity. • 74 % coverage of regional taxa shows effective data mobilization.
Target 21: Awareness and uptake of biodiversity value	<ul style="list-style-type: none"> • 71 biocultural stories (top 1 %) reflect deep narrative embedding of biodiversity values. • Community engagement in the top 15 % signals strong awareness campaigns.
Target 22: Indigenous and local community rights	<ul style="list-style-type: none"> • Collaboration with three ethnic groups and storytelling labs illustrates respect for traditional knowledge and rights. • Intergenerational workshops reinforce customary stewardship.
Target 3: Eliminate unsustainable practices	<ul style="list-style-type: none"> • Stakeholder-driven monitoring of indicator species supports proactive habitat protection measures.
Target 14: Mobilize financial resources	<ul style="list-style-type: none"> • Conversion of BioScore into 6.40 BCUs provides a clear conservation currency for funding. • Recommendations for BCU-linked incentives directly address the finance gap.

CONCLUSION & RECOMMENDATIONS

Avana Retreat has demonstrably established itself as a global exemplar of biocultural health.

It has recorded a remarkable 24.6 percent BioScore increase over the past year (5 452.61 → 6 793.94) and a rise from 5.14 to 6.40 BCUs. Its community-driven data metrics—387 observations, 71 stories, 21 participants, 151 unique species, and 524 expert identifications—place it consistently in the top decile of Guardians of Earth’s Nature Realms.

Crucially, these outputs align directly with leading international frameworks: Avana’s participatory governance, strategic BioScore growth, risk-management via indicator-species monitoring, and transparent percentiles map onto TNFD’s four pillars, while its rich storytelling, knowledge mobilization, and financial-incentive mechanisms support multiple GBF targets (19, 21, 22, 3, and 14).

This convergence underscores Avana’s role not only as a local stewardship success but also as a scalable model for nature-finance integration worldwide.

This success should be shared globally for other similar properties to follow.

To build on this momentum, we recommend the following:

1. Amplifying guest engagement by embedding biocultural participation into the visitor experience—for example, through gamified interactions using tools like *Spirits of the Realms* that reward real-world species observations.

2. Integrating BCUs into a loyalty program would further incentivize sustained contributions: guests could earn BCUs for data collection, story submissions, or expert identifications, redeemable for on-site experiences or local conservation initiatives.

3. Finally, Avana should continue capturing and uploading its wealth of cultural stories and events—particularly those emerging from its three indigenous partner communities—to reinforce the reciprocal human-nature relationship that underpins true biocultural health. Simple videos from phone cameras are more than sufficient.

By deepening both technological innovation and cultural collaboration, Avana Retreat can maintain its leadership in conservation and inspire similar efforts across the Guardians of Earth network.



DETAILED METHODOLOGY

The BioScore uses a multi-dimensional approach to analyse the location defined as defined by the boundaries on the map. These are:

1. Species Diversity Score
2. Monitoring Score (data quantity)
3. BioValue (data quality)
4. Community Score (community engagement)
5. Stories score (quantity and quality combined) Analysis Techniques

Data is analyzed by comparing conditions in the realm with surrounding areas that are 5 and 12.5 times the size of the realm, centred around it, to identify trends in biodiversity and human interaction with the ecosystem. This comparative intends to create a fairer baseline metric.

Overall Score

$$BCU = \alpha \times \text{Species Diversity Score} + \beta \times \text{Monitoring Score} + \gamma \times \text{Observation Score} + \text{BioValue} + N$$

where α , β , and γ are weights, and N is the number of Songs awarded to stories in that realm

1. Species Diversity Score measures species recorded in the Realm relative to observations made, region, and time.

$$\text{Species Diversity Score} = (S_r \times c_s) + \left(\frac{S_r}{O_r} \times c_{so}\right) + \left(\frac{S_r}{S_{5r}} \times c_{ls}\right) + \left(\frac{S_r}{S_{12.5r}} \times c_{gr}\right) + \left(\frac{S_{\text{this year}}}{S_r} \times c_{cy}\right) + \left(\frac{S_{\text{last 2 years}}}{S_r} \times c_{st}\right)$$

Where:

S_r = Species spotted in realm

O_r = Total observations in realm

S_{5r} = Total species in a quadrilateral area that is 5x the size of the realm

$S_{12.5r}$ = Total species in a quadrilateral area that is 12.5x the size of the realm

$S_{\text{this year}}$ = Species spotted in realm this year

$S_{\text{last 2 years}}$ = Species spotted in realm in the last two years

c_s = species constant (= 1)

c_{so} = species per observation constant (= 100)

c_{ls} = locality species constant (= 500)

c_{gr} = greater region species constant (= 1000)

c_{cy} = current year species constant (= 50) c_{st}

= species trend constant (= 100)

Notes:

This year = Last 12 months

Last two years = Last 24 months



2. Monitoring Score (data quantity) measures the amount of data available to the Realm relative to region and time.

$$\text{Monitoring Score} = (O_r \times c_o) + \left(\frac{O_r}{O_{5r}} \times c_{lo} \right) + \left(\frac{O_r}{O_{12.5r}} \times c_{gro} \right) + \left(\frac{O_{\text{this year}}}{O_r} \times c_{cyo} \right) + \left(\frac{O_{\text{last 2 years}}}{O_r} \times c_{ot} \right)$$

Where:

O_r = Total observations in realm

O_{5r} = Total observations in a 5x area

$O_{12.5r}$ = Total observations in a quadrilateral area that is 12.5x the size of the realm

$O_{\text{this year}}$ = Observations in realm this year

$O_{\text{last 2 years}}$ = Observations in realm in the last two years

c_o = observations constant (= 1)

c_{lo} = locality observations constant (= 500)

c_{gro} = greater region observations constant (= 1000)

c_{yo} = current year observations constant (= 50)

c_{ot} = observations trend constant (= 100)

3. BioValue (data quality) measures the quality of the data provided, based on scoring of the data by community experts. For example, data verified by proven experts, whether it's gone through a blind peer review system, whether it has image evidence, etc., will score higher than non peer reviewed data, etc.

$$\text{BioValue} = \left(\frac{\text{Average bioscore of observations or Constant (20)}}{\text{or Constant (20)}} \times c_{aos} \right)$$

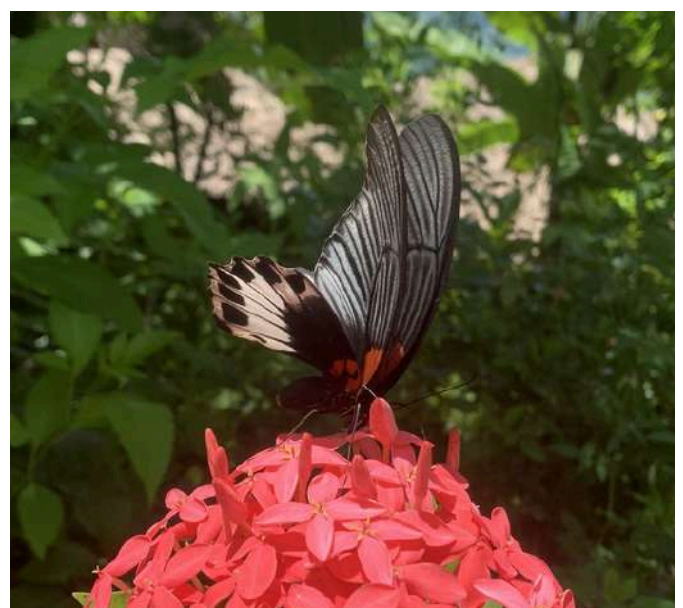
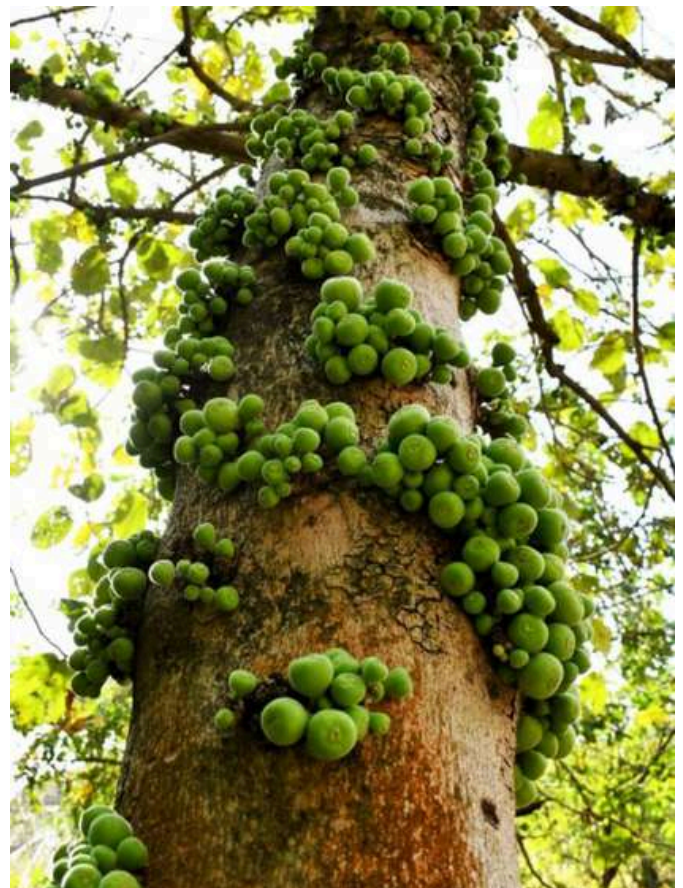
BioValue = 0 if observations are 0

Where:

c_{aos} = average observations score constant = 0 if Observations are 0.

Otherwise the following scores:

- Open social network with image and identification = 20
- "Research grade" via social network (not blind) = 100 - "Expert valued"
- Scaled based on blind peer review scoring of "data value" by proven taxonomy expertise within a category (see [Oracle of Life](#)) lowest (e.g. commonly recorded species of low value) = 20~ highest (e.g. unique species and indicator of environmental health) = 800



4. Community Score (community engagement) measures the number of people contributing data to the realm relative to the amount of data they contribute per person, relative to region and time.

$$\text{Community Score} = (H_r \times c_p) + \left(\frac{O_r}{H_r} \times c_{opp}\right) + \left(\frac{O_r}{H_{5r}} \times c_{lp}\right) + \left(\frac{H_r}{H_{12.5r}} \times c_{grp}\right) + \left(\frac{H_{\text{this year}}}{H_{\text{all time}}} \times c_{cyp}\right) + \left(\frac{H_{\text{last 2 years}}}{H_{\text{all time}}} \times c_{at}\right)$$

Where:

H_r = Total number of human observers in realm

O_r = Total observations in realm

H_{5r} = Total number of human observers in a 5x area

H_{12.5r} = Total number of human observers in a 12.5x area

H_{this_year} = Number of human observers this year

H_{last_2_years} = Number of human observers in the last two years

Constants:

c_p = People Constant (=1)

c_{opp} = observations_per_person_constant (=10)

c_{lp} = locality_people_constant (=100)

c_{grp} = greater_region_people_constant (=50)

c_{cyp} = urrent_year_people_constant (=50)

c_{at} = activity_trend_constant (=100)

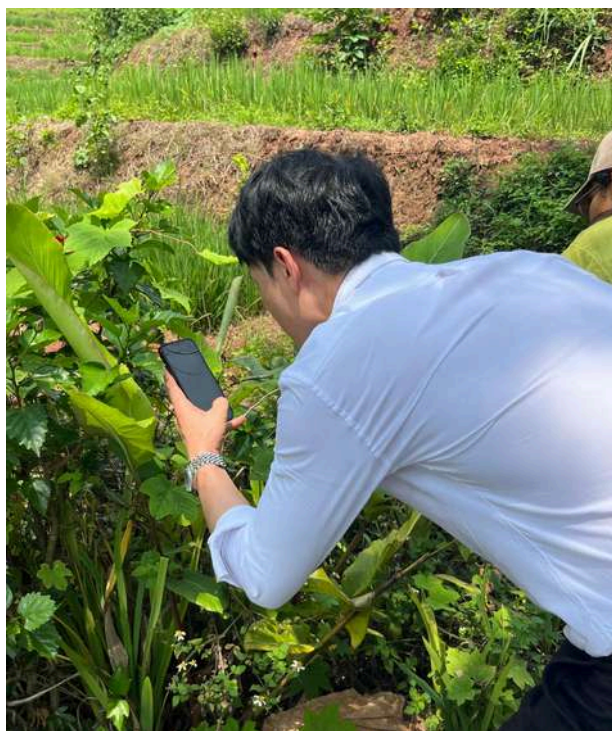
5. Stories score (quantity and quality combined) is a carefully designed collective valuation methodology, where knowledge content is weighted in favour of local people with stronger connections to the place where the story exists. Stories are awarded "Songs" by the community, with constraints based on proven connection to the land. Each song is worth a score of one.

Supported Apps

This report supports data collected via the following apps:

- [Observation.org](https://www.observations.org/)
- [MushroomObserver.org](https://mushroomobserver.org/)
- [Spirits of the Realms](https://spiritsoftherealms.com/)
- [eBird](https://ebird.org/) (or MerlinID)
- [NatureSpot](https://naturespot.org/)
- [QuestaGame](https://questa.com/)
- [iNaturalist](https://inaturalist.org/) (or Seek)
- [CitSci.org](https://citsci.org/)
- [Oracle of Life](https://oracleoflife.com/)
- [Guardians of the Realms](https://guardiansoftherealms.com/)
- [NatureMapr](https://naturemapr.com/)
- [Reef Life Survey](https://reeflife.org/)
- [FrogID](https://frogid.org/)

Data partnership: The Global Biodiversity Information Facility (GBIF.org).



RECOMMENDED SPIRIT - *SPIRITS OF THE REALMS* MOBILE GAME

Spirits of the Realms is a fantasy card-collection game for Android and iPhone phones that helps engage communities with their local environments in a way that fosters and promotes real-world nature restoration activities.

The Great Mormon Butterfly (*Papilio memnon*) is the most frequently sighted butterfly at Avana Retreat, making it a natural choice to represent this Nature Realm in *Spirits of the Realms*. With its velvety black wings, shimmering blue highlights, and striking size, it captures the lush beauty and ecological richness of Avana's highland forests—reflected in the realm's exceptional BioScore and species diversity.

Guests regularly encounter this charismatic butterfly along the flower-rimmed pathways of the retreat, making it not only a symbol of biodiversity but also a vivid and memorable part of the visitor experience.

In many Asian cultures, butterflies are seen as messengers between worlds—symbols of transformation, spiritual presence, and fleeting beauty. The Great Mormon, with its elegant form and dramatic sexual dimorphism, reflects the transformative experience that Avana offers: a place where guests reconnect with nature, culture, and a slower rhythm of life. As a spirit in the game, it embodies that sense of wonder and belonging—an invitation to fall in love with the land, to see with attention, and to feel part of a deeper, living story.



inspired by the Great Mormon Butterfly (Papilio memnon), this spirit creature embodies the deep biocultural harmony that defines the Avana Retreat, where indigenous knowledge, rare species, and tropical renewal intertwine.

Alternate Concept

The Mountain Crab is a rare and locally significant species at Avana Retreat, often found in clean, shaded streams—making it a powerful indicator of healthy, undisturbed forest waterways. Its quiet, resilient presence reflects the retreat's commitment to ecological balance and restoration. As a spirit, the Mountain Crab embodies groundedness, hidden richness, and the overlooked magic of slow, steady life—inviting players and guests alike to notice the small, sacred details that sustain the Avana landscape.

