



Cultural and Religious Keystone Species



The Need to Resacralize Nature

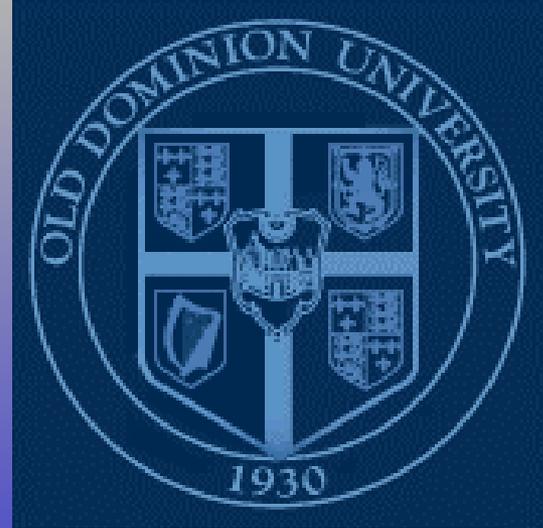




Mohammad Al Zein

and

Lytton John Musselman, Old Dominion University, Norfolk, Virginia



T Robert Sampson, Edwardes College, Peshawar, Pakistan



Kushan Tennakoon, Perideniya University, Kandy, Sri Lanka and Old Dominion University





Assumption 1: Many biodiversity programs are based on the secular Western science pattern. As a result Western scientists (and often western-trained scientists) avoid considering any relation between religion and conservation science.



Assumption 2: Most farmers and others closest to agrobiodiversity have some belief in a God or Gods active in creation and nature.



Assumption 3: Many decision makers and most scientists are little aware of the importance of plants in the Holy Koran and other holy and religious writings and how local people value them.



This is changing, however, as social and natural scientists realize the strength of religious beliefs in shaping local decisions impacting biodiversity.

A Simple Taxonomy of Cultural Keystone Species



The term “keystone species was coined by R T Paine in 1969 to refer to species essential to “the integrity of the community and its unaltered persistence through time.”

Their effect is out of proportion to the keystone species’ abundance or biomass.

A Simple Taxonomy of Cultural Keystone Species



National Symbols
Cultural Keystone Species
Religious Keystone Species

A Simple Taxonomy of Cultural Keystone Species



National Symbols

Cultural Keystone Species

Religious Keystone Species

A Simple Taxonomy of Cultural Keystone Species



National plant symbols are species associated with a specific political unit. These may or may not be cultural or religious keystone species.

Plants as National Symbols



Some nations have plants as symbols on their national flags. Examples include Lebanon with cedar of Lebanon (*Cedrus libani*) and Canada with maple (*Acer saccharum*).

Plants as National Symbols



Many nations figure plants on their coins.

Plants as National Symbols



Examples include:

Leeks, shamrock, thistle, and rose on coins of the United Kingdom.



Plants as National Symbols



Examples include:

The kokerboom tree
(*Aloe dichotoma*) on
coins of Namibia.



Plants as National Symbols



Examples include:
Laurel (*Laurus nobilis*)
and olive (*Olea
europa*) on coins of
Cyprus (and many
other countries.)



Plants as National Symbols



Many more examples could be given. In fact, most countries figure some plant on their currency. This clearly documents the importance of plants as cultural and national symbols.

A Simple Taxonomy of Cultural Keystone Species



National Symbols

Cultural Keystone Species

Religious Keystone Species

A Simple Taxonomy of Cultural Keystone Species



Cultural Keystone Species

“Plant species whose existence and symbolic value are essential to the stability of a cultural group over time.”

Adapted from: S. Cristancho and J. Vining. Culturally defined keystone species. *Human Ecology Review* 11. 2004.

Cultural Keystone Species

--A different definition



Indigenous people of a particular landbase identify with a limited complex of species exceptionally important to their daily lives. These are cultural keystone species.

After: Garibaldi and Turner. Ecology and Society 2004

Religious Keystone Species



Plants with iconic cultic value. Without these plants the religion could not be practiced.

Religious Keystone Species



Very little attention has been paid to plants of religious value except in cultures with shamanistic religions.

Religious Keystone Species

Trees



Trees are prominent in many religious narratives. For example, trees are the most frequently mentioned living things in the Bible except for humans .

Religious Keystone Species Trees



Narrated Anas bin Malik:
Allah's Apostle said, "There is none amongst the Muslims who plants a tree or sows seeds, and then a bird, or a person or an animal eats from it, but is regarded as a charitable gift for him."

Volume 3, Book 39, Number 513

Religious Keystone Species Trees



Revelation 22

“The leaves of the tree were for the healing of the nations.”

Chamaecyparis thyoides



Atlantic white cedar, Dismal Swamp



Cedar of Lebanon

Local people in different cultures use Bible and Koran names for indigenous plants which never grew in their lands. The flora of Eastern North America, for example, has many "cedars," which are no relation to the cedar of Lebanon of the Bible.

Juniperus virginiana



Red cedar

In eastern Sudan, the Beja people call the large, arborescent *Euphorbia abyssinica*, *zaqqm* after the “tree of Hell” mentioned in the Qu’ran (Al-Sfft 37:65, Al-Dukhn 44:49, Al-Waqiah 56:51).



Euphorbia abyssinica

Examples of Cultural and Religious Keystone species

Olive (*Olea europaea*)

Som ~ (*Amanita muscaria*? or (*Nelumbo
nucifera*?)

Grape (*Vitis vinifera*) and grape products)

Bo tree (*Ficus religiosa*)

Cultural Keystone Species

Olive (*Olea europea*)

Som ~ (*Amanita muscaria*? or (*Nelumbo
nucifera*?)

Cultural Keystone species

Olive (*Olea europea*)

Som ~ (*Amanita muscaria*? or (*Nelumbo
nucifera*?)



Cultural Keystone Species

Olive (*Olea europaea*)



Olive is one of two trees in the Holy Koran by which God swears.



Olive grove near Tayasir, Palestine

Cultural Keystone Species

Olive (*Olea europaea*)



Olive is mentioned more times in the Holy Bible than any other tree.



Olea oleaster, wild olive, Sidi Bou Ghaba, Kenitra, Morocco.



Cultural Keystone Species

Olive (*Olea europaea*)



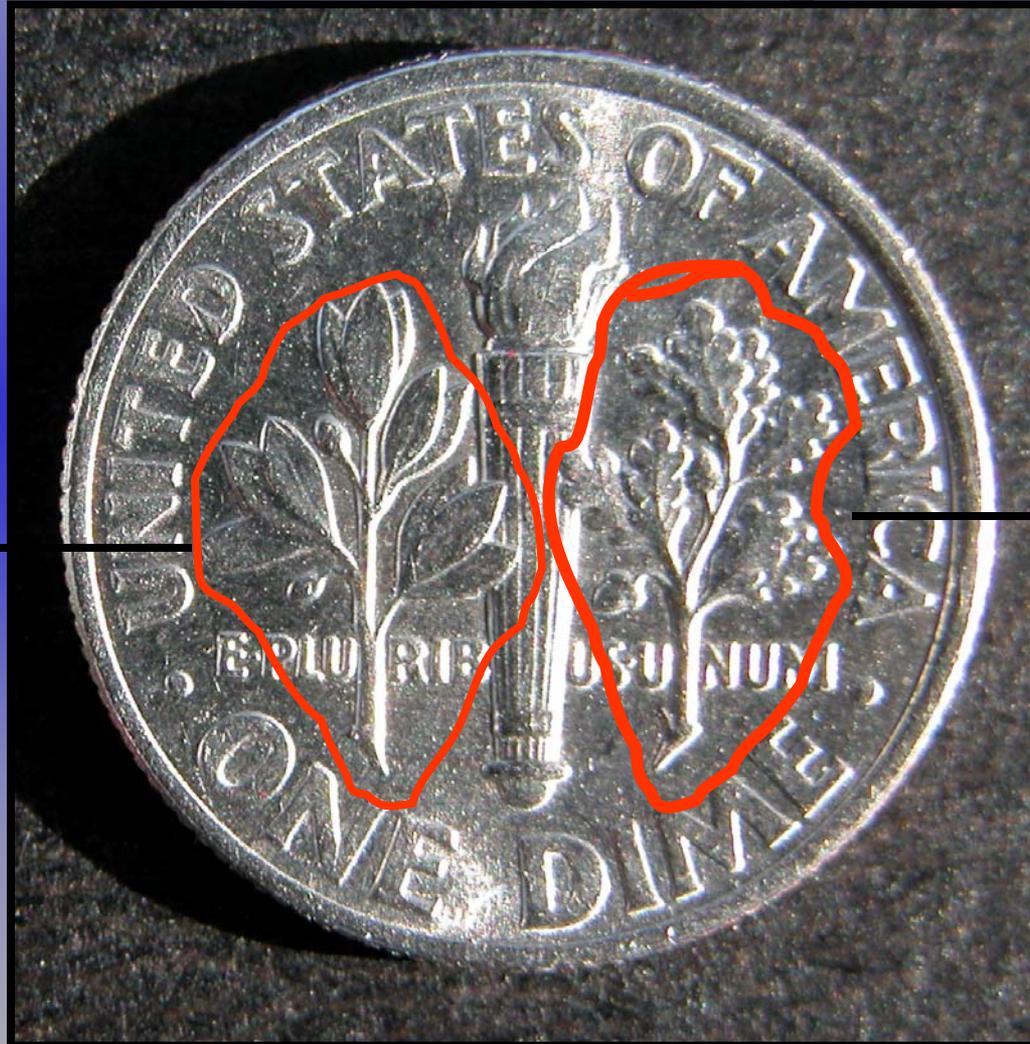
Olive is one of the most widely used plants in national and cultural identity.

One of the more commonly used symbols of Palestine is the olive tree.

It is also figured on currency in the
United States

Cultural Keystone Species

Olive (*Olea europaea*)



Olive

Oak

Cultural Keystone Species

Olive (*Olea europaea*)

Som ~ (*Amanita muscaria*? or (*Nelumbo
nucifera*?)



Cultural Keystone Species

soma



Som ~ (*Amanita muscaria*? or (*Nelumbo
nucifera*?)



Cultural Keystone Species

soma



Som ~ is an important element in Pashtā
Sufi poetry.
(Pashtā is a dominant language in
Afghanistan and parts of Pakistan).



Cultural Keystone Species

Som ~



The *tappa* is a common poetic form in Pashtā. *Tappas* often refer to *som* ~

Sound the bells, O moon, arise and shine!

My love is reaping flowers and may cut her fingers.



Cultural Keystone Species

Som ~



The identity of *som* ~ is debatable, either the mushroom *Amanita muscaria*, widespread in much of the world, or the aquatic plant *Nelumbo nucifera*.



Cultural Keystone Species



Nelumbo nucifera is widespread in Asia and often associated with Lord Buddha.



Cultural Keystone Species

Som ~



Amanita muscaria. A mychorrhizal hallucogenic mushroom associated with ancient Aryan culture.



Cultural Keystone Species

Som ~



A recent ethnobotanical study comes to the conclusion that *Nelumbo nucifera* is the best candidate for *som* ~ based largely on Hindu and Buddhist imagery.

Andrew McDonald, "A Botanical Perspective on the Identity of Soma (*Nelumbo nucifera* Gaertn.) Based on Scriptural and Iconographic Records" *Economic Botany* 58 (Supplement) 2004 pp. 147-173.



Cultural Keystone Species

Som ~



However, this recent study drew heavily on more recent literature rather than the Sanskrit classic, *Rg Veda*.



Cultural Keystone Species

Som~



The context in Pashtā poems indicates a forest setting, not an aquatic habitat. This makes *Amanita muscaria* the most likely candidate for *som~*.



Cultural Keystone Species

Som~



In the case of *som~* botanical research is necessary to determine which plant is indicated. There may be other cultural keystone species that need to be determined.

Examples of Cultural and Religious Keystone species

Olive (*Olea europaea*)

Grape (*Vitis vinifera*) and grape products)

Som ~ (*Amanita muscaria*? or (*Nelumbo
nucifera*?)

Bo tree (*Ficus religiosa*)

Religious Keystone Species

Grape (*Vitis vinifera*) and grape products)

يا وائلة الإله يا أم النور يا سيادة صيدلآ
صوني عيادي الخاملين ايقونتك عند المقدسة
من كل شدة ومن كل خطر ومن كل حيق وسهلي
بنيتك أمورهم • أحسن .

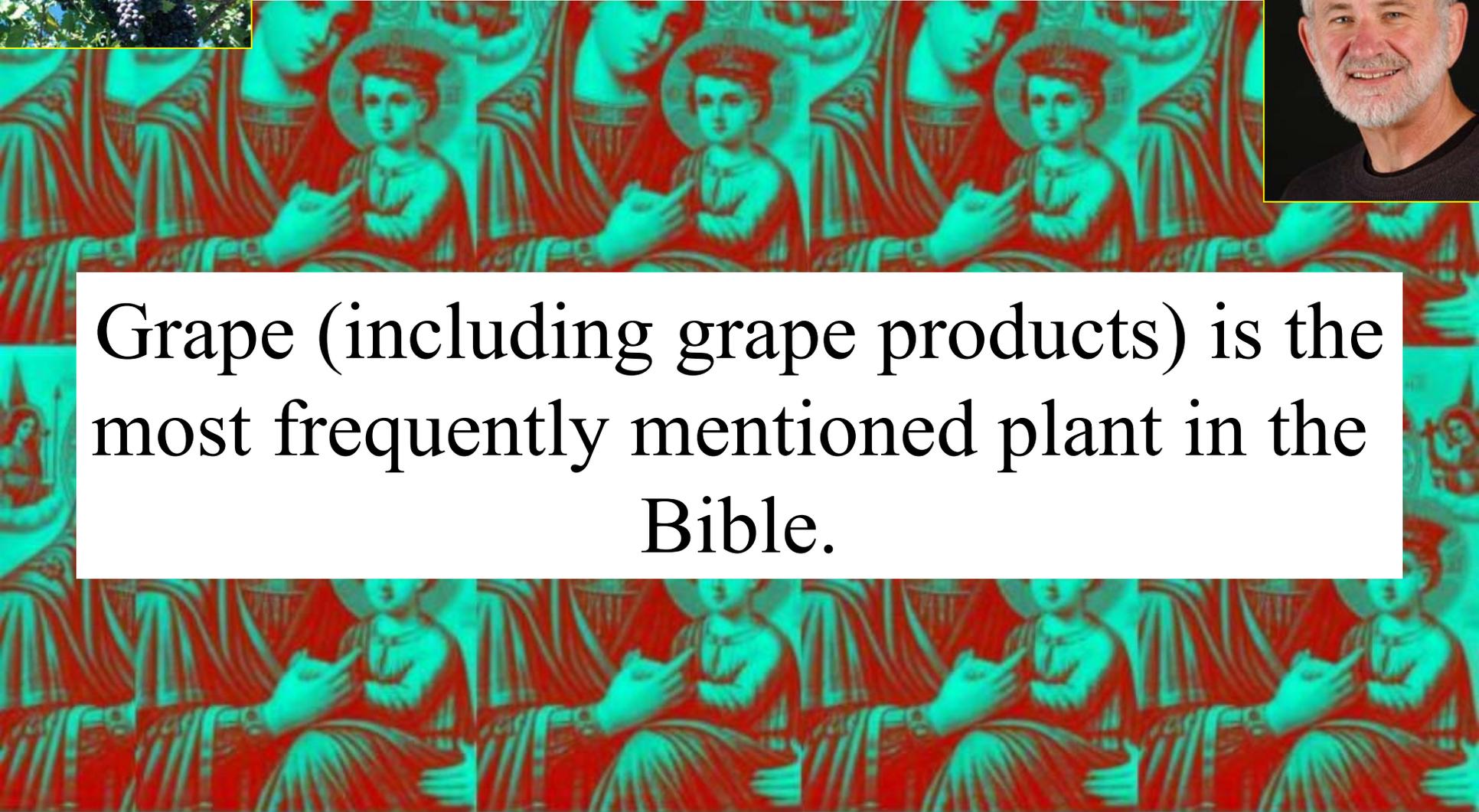
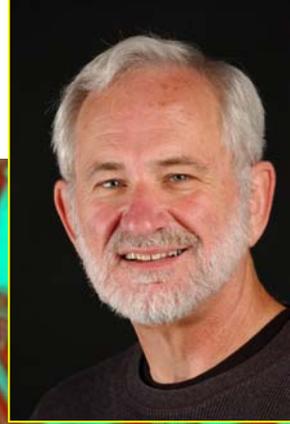
يا وائلة الإله يا أم النور يا سيادة صيدلآ
صوني عيادي الخاملين ايقونتك عند المقدسة
من كل شدة ومن كل خطر ومن كل حيق وسهلي
بنيتك أمورهم • أحسن .

يا وائلة الإله يا أم النور يا سيادة صيدلآ
صوني عيادي الخاملين ايقونتك عند المقدسة
من كل شدة ومن كل خطر ومن كل حيق وسهلي
بنيتك أمورهم • أحسن .

يا وائلة الإله يا أم النور يا سيادة صيدلآ
صوني عيادي الخاملين ايقونتك عند المقدسة
من كل شدة ومن كل خطر ومن كل حيق وسهلي
بنيتك أمورهم • أحسن .



Religious Keystone Species



Grape (including grape products) is the most frequently mentioned plant in the Bible.

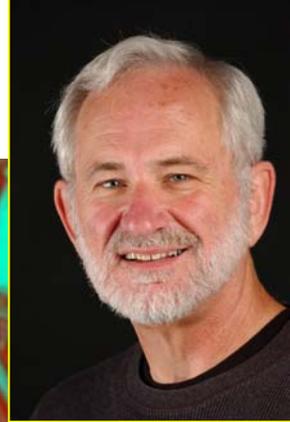
يا سيدة صيدا
يا والدة الاله يا ام النور يا سيدة صيدا
صوني عيداى الحاملين ابوتك هندة المقدسة
من كل شدة ومن كل خطر ومن كل حيق واسهلي
بنيتك مورهم • آمسنج .

يا والدة الاله يا ام النور يا سيدة صيدا
صوني عيداى الحاملين ابوتك هندة المقدسة
من كل شدة ومن كل خطر ومن كل حيق واسهلي
بنيتك مورهم • آمسنج .

يا والدة الاله يا ام النور يا سيدة صيدا
صوني عيداى الحاملين ابوتك هندة المقدسة
من كل شدة ومن كل خطر ومن كل حيق واسهلي
بنيتك مورهم • آمسنج .

يا والدة الاله يا ام النور يا سيدة صيدا
صوني عيداى الحاملين ابوتك هندة المقدسة
من كل شدة ومن كل خطر ومن كل حيق واسهلي
بنيتك مورهم • آمسنج .

Religious Keystone Species



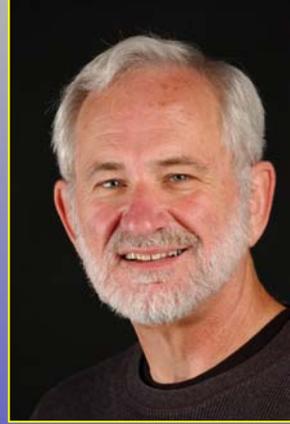
In the Bible, Jesus establishes the symbolism between Himself and that of the grapevine emphasizing fruit as a symbol of pleasing God.

Traditional grape culture near Khalil, Palestine

داؤد الله يا أم التور يا سيدة صيدا
صوني عبيدك الخليلك صيدا القديسة
برال شدة ووراي الخليلك صيدا القديسة
بيعتك نورم + أصحبي .



Religious Keystone Species



Grape (*Vitis vinifera*) and grape products)
Bo tree (Ficus religiosa)



Religious Keystone Species



Bo tree (Ficus religiosa)

According to Buddhist teaching, Lord Buddha attained enlightenment under a *Ficus religiosa* (bo tree).



Religious Keystone Species



Bo tree (Ficus religiosa)

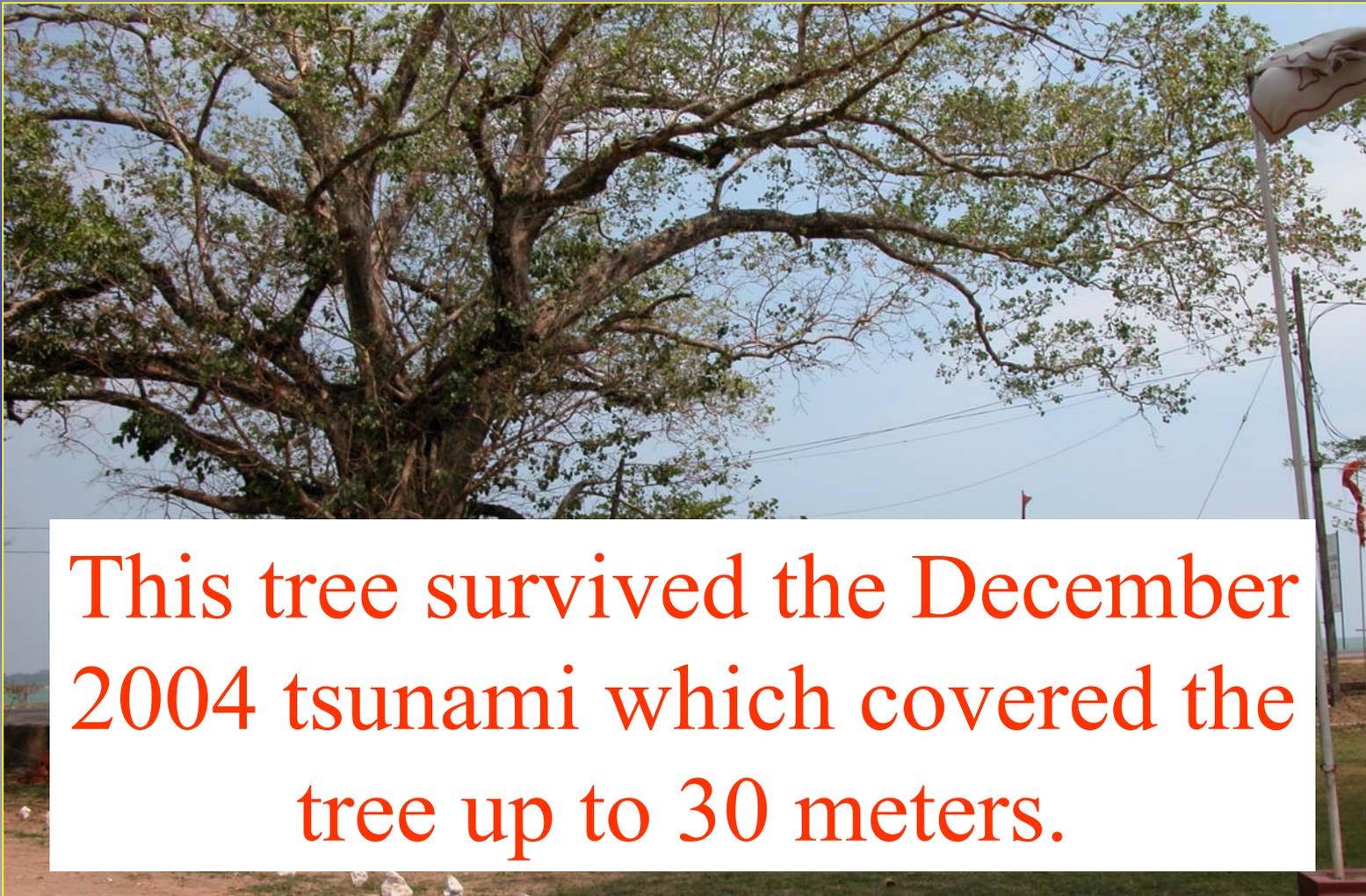
As a result, every Buddhist temple and shrine in Sri Lanka has a *bo* tree and the leaf of the *bo* tree is featured on every temple dome.



Religious Keystone Species



Bo tree (Ficus religiosa)



This tree survived the December 2004 tsunami which covered the tree up to 30 meters.

Ficus religiosa, Weligama Bay, Sri Lanka



Religious Keystone Species



Bo tree (Ficus religiosa)

A common sight in Sri Lanka—a *bo* tree with a small shrine.



Ficus religiosa, Kandy, Sri Lanka



Religious Keystone Species



Bo tree (Ficus religiosa)

The *bo* tree becomes both figuratively and literally the center of a garden which is the source of plants for Ayurvedic medicinal and cultic use.



Religious Keystone Species



Bo tree (Ficus religiosa)

Put another way, the *bo* tree becomes
the focus of a community of plants.



Religious Keystone Species



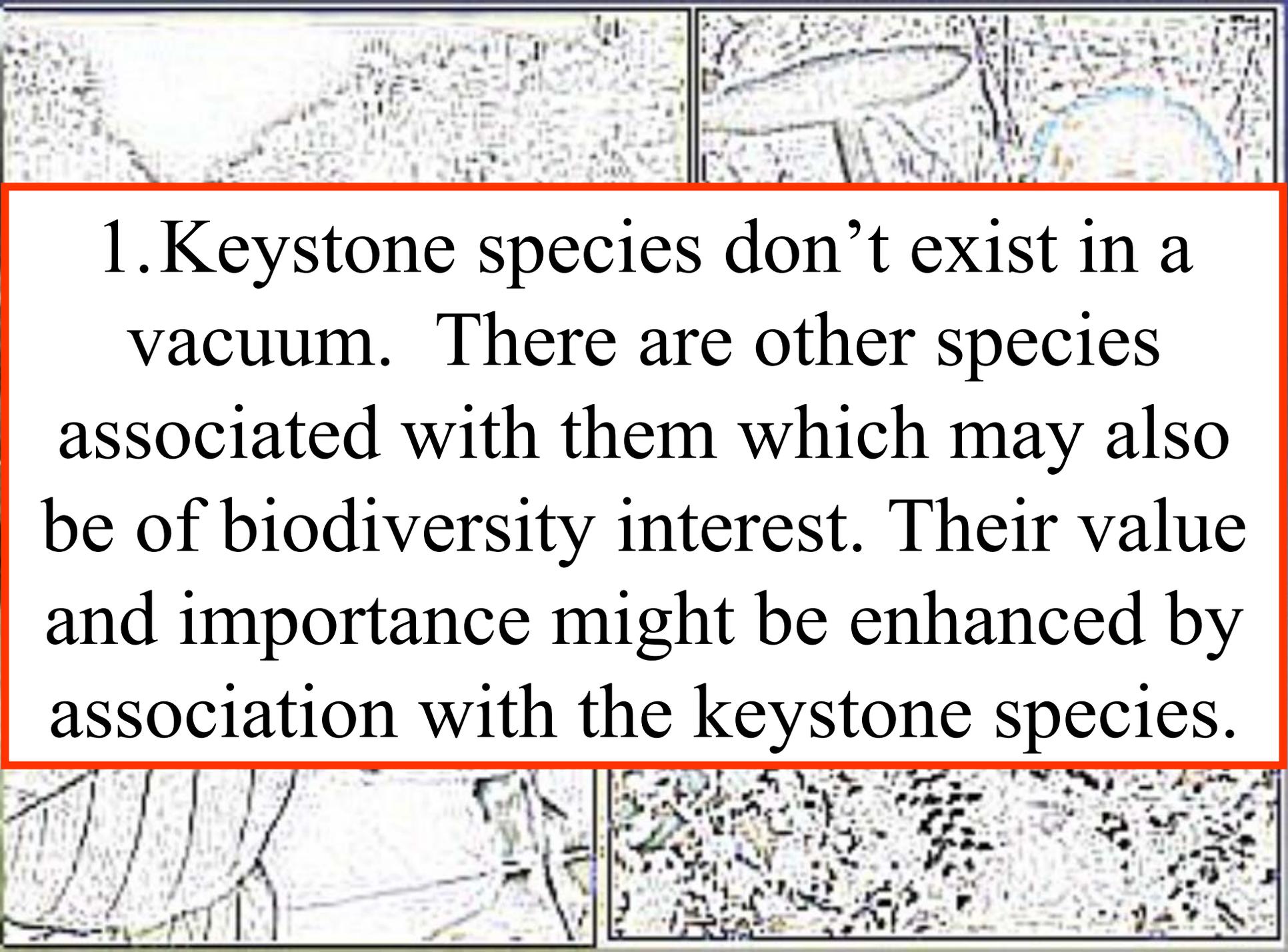
Bo tree (Ficus religiosa)

When this traditional system was perturbed by colonialism, extensive erosion and loss of water resources occurred.



How can the concept of cultural and religious keystone species help agrobiodiversity?



The image is framed by four panels of microscopic biological structures. The top-left panel shows a dense network of fine, branching fibers. The top-right panel features a large, elongated, spindle-shaped structure with a central constriction, surrounded by a complex network of fibers. The bottom-left panel displays several thick, parallel, wavy bands. The bottom-right panel shows a highly textured, granular surface with numerous small, dark, irregular spots.

1. Keystone species don't exist in a vacuum. There are other species associated with them which may also be of biodiversity interest. Their value and importance might be enhanced by association with the keystone species.



2. Keystone species are already well known by members of local communities.





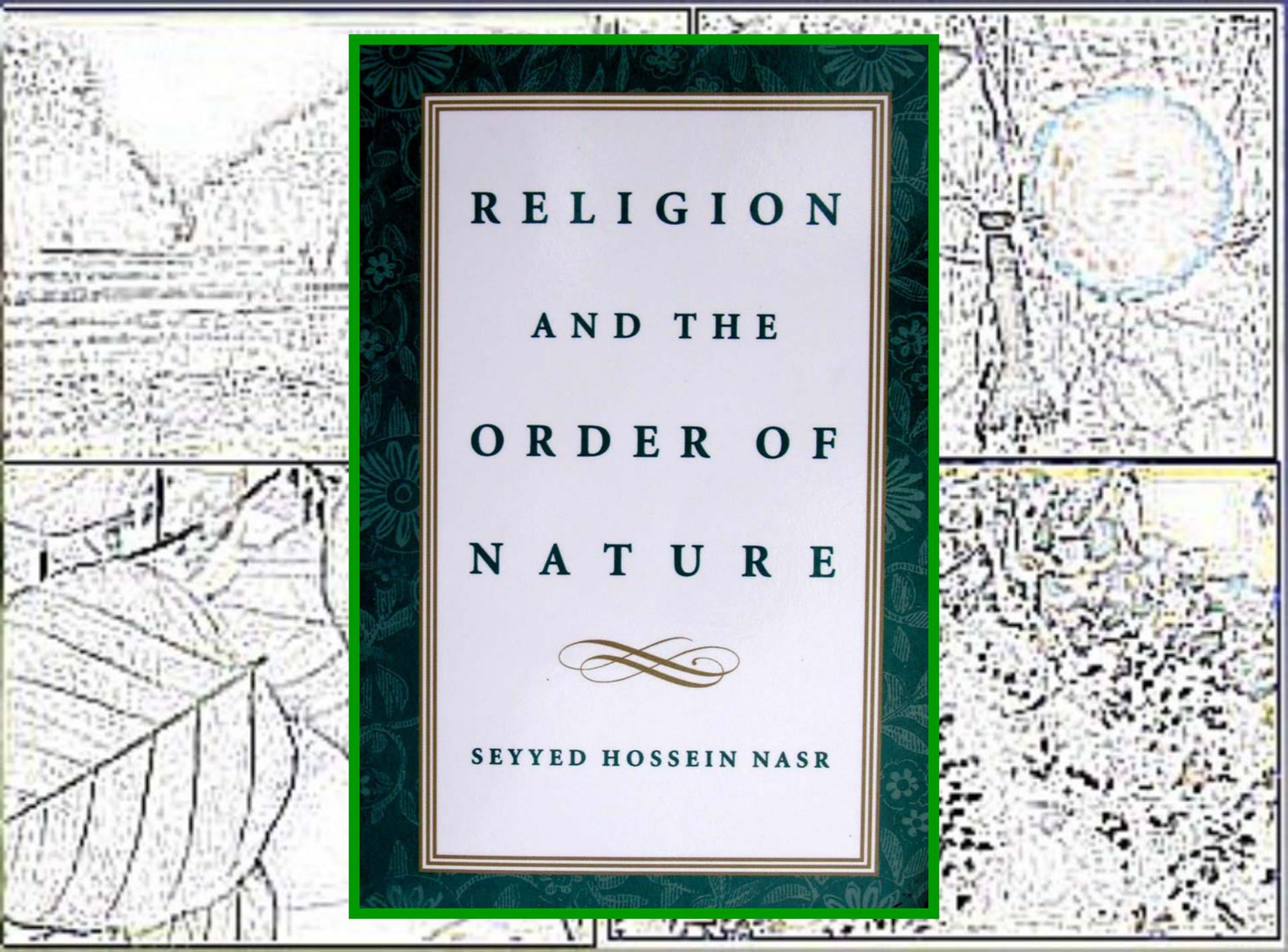
3. Through reference to keystone species, decision makers can respect and learn from local religious and cultural traditions.





What are some community based projects that use or can use keystone species to further their efforts?





RELIGION

AND THE

ORDER OF

NATURE



SEYYED HOSSEIN NASR



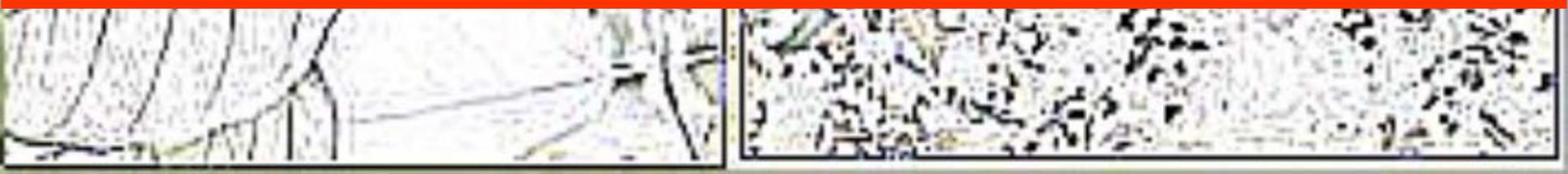
Some current Islamic biodiversity
efforts:

Grand Mufti of Syria

Tree planting in northern Nigeria

Sidi Bou Ghaba, Morocco

Reef protection in Tanzania





Some current Islamic biodiversity efforts:

Grand Mufti of Syria

Tree planting in northern Nigeria

Sidi Bou Ghaba, Morocco

Reef protection in Tanzania



Some current Islamic biodiversity efforts:

Grand Mufti of Syria

Sheikh Ahmad Kuftaro

The Grand Mufti Of Syria

OFFICIAL WEBSITE

Русский Español Deutsch 日本語 Türkçe Français English عربي





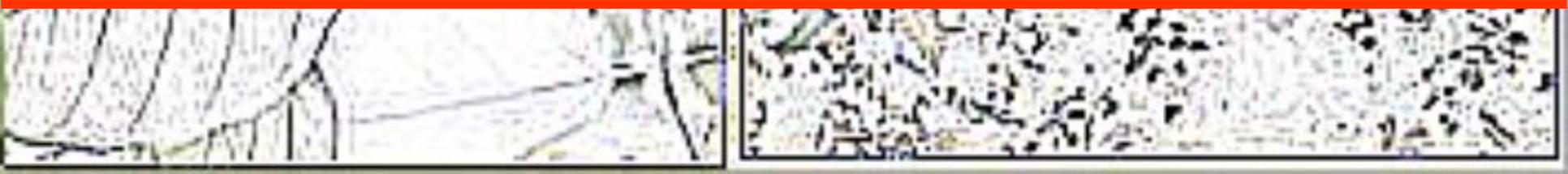
Some current Islamic biodiversity efforts:

Grand Mufti of Syria

Tree planting in northern Nigeria

Sidi Bou Ghaba, Morocco

Reef protection in Tanzania





Some current Islamic biodiversity efforts:
Tree planting in northern Nigeria



Religious Keystone Species Trees



Narrated Anas bin Malik:
Allah's Apostle said, "There is none amongst the Muslims who plants a tree or sows seeds, and then a bird, or a person or an animal eats from it, but is regarded as a charitable gift for him."

Volume 3, Book 39, Number 513



Some current Islamic biodiversity efforts:

Grand Mufti of Syria

Tree planting in northern Nigeria

Sidi Bou Ghaba, Morocco

Reef protection in Tanzania

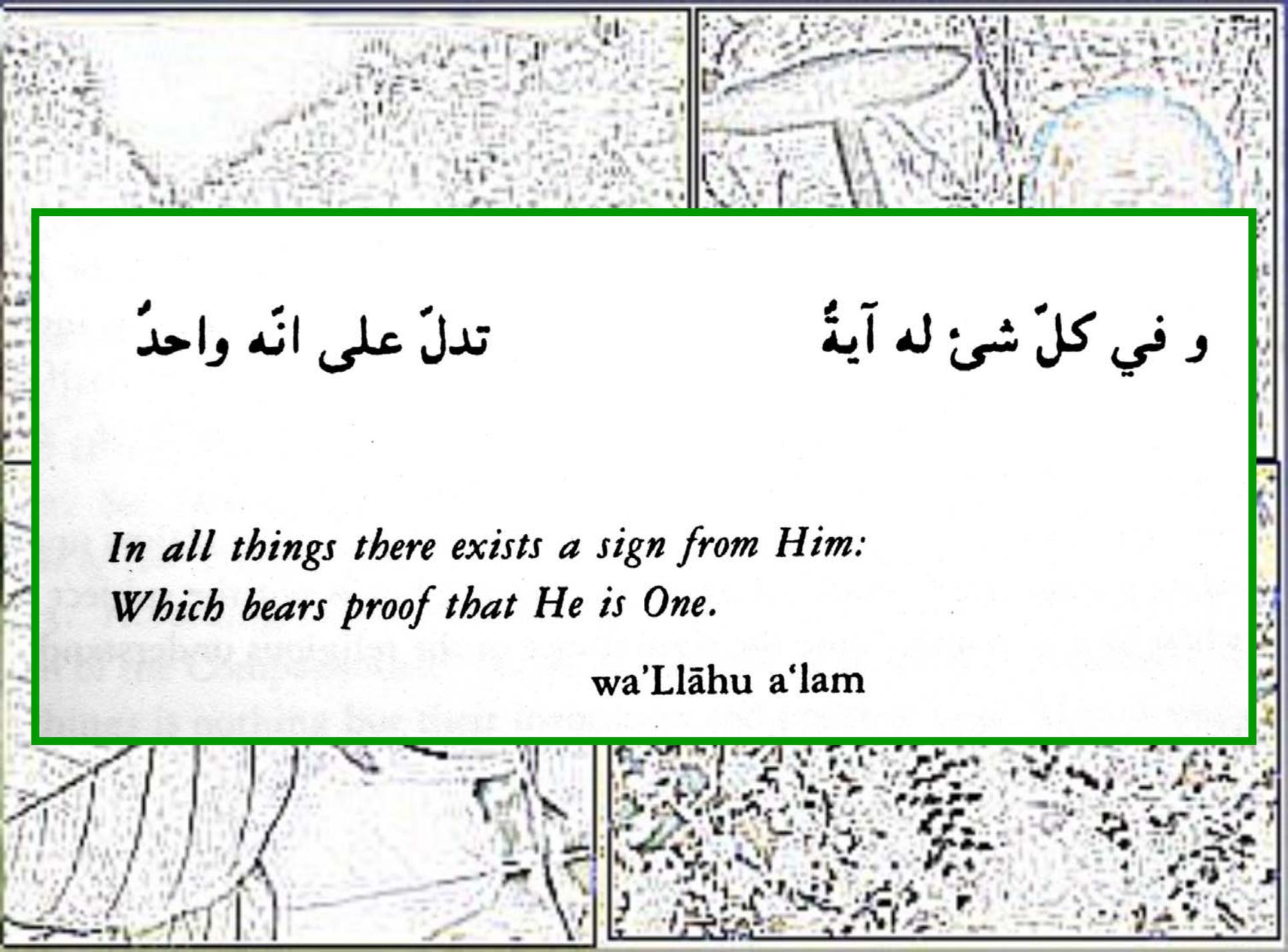


Some current Islamic biodiversity efforts:

Sidi Bou Ghaba, Morocco



Arar (Tetraclinis articulata) is a tree all Moroccans know. At Sidi Bou Ghaba children are introduced to its ecology.

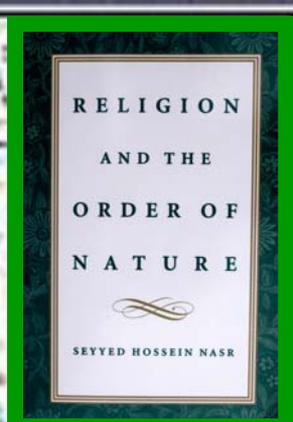


تدلّ على انه واحدُ

و في كلّ شئ له آيةٌ

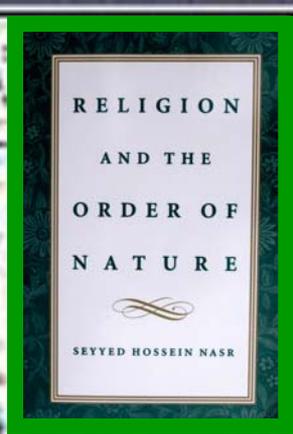
*In all things there exists a sign from Him:
Which bears proof that He is One.*

wa'Llāhu a'lam

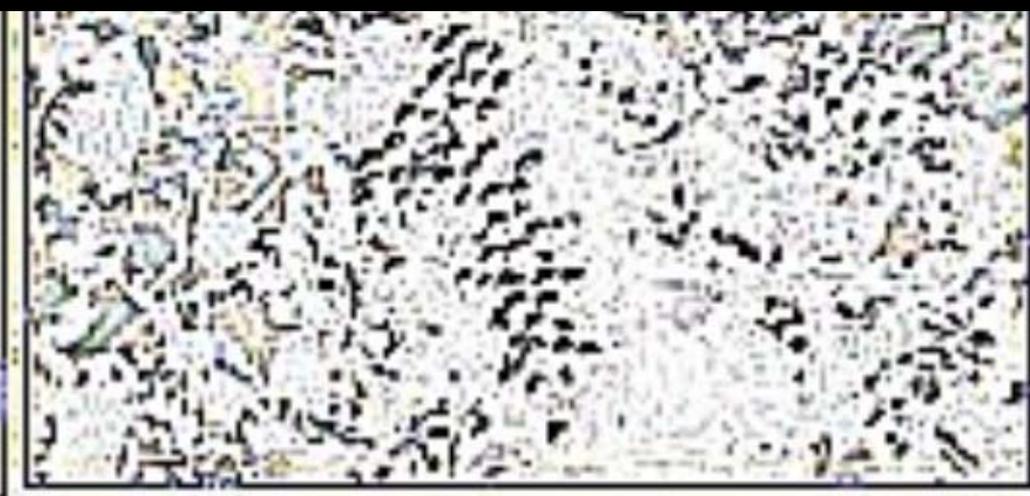


There is a need to resacralize nature, that is, making nature part of the sacred, giving it the value it is given by its creator.





This is much different than worshipping nature. Rather, it is viewing nature in light of the holy writings.





Thank You!!!