

Fare i conti  
con l'ambiente  
Rifiuti acqua energia

>Rave  
nna  
16·17·18  
maggio 2018

## Workshop S – Il Bosco coltivato ad Arte – 4<sup>a</sup> edizione – Progettazione degli ambienti e nuove opportunità per la vita selvatica

Bionomia ed ecologia del  
paesaggio: per sovvertire  
un paradigma liso ed  
ingenuo

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# Bionomia ed ecologia del paesaggio: per sovvertire un paradigma liso ed ingenuo

Ci sono idee che ci abitano dentro  
*silenziosamente.*

Magari perché sono sempre state in noi.  
Magari invece perché qualcuno le ha già  
avute, e si sono silenziosamente diffuse;  
e noi non lo sapevamo.

Oppure, vai tu a sapere il perché.

# Bionomia ed ecologia del paesaggio: per sovvertire un paradigma liso ed ingenuo

Alcune di queste idee, tuttavia, non raggiungono proprio il cuore di quelli che dovrebbero essere deputati a realizzarle.

E, ed anche di questo, non si sa il perché.

# Bionomia ed ecologia del paesaggio: per sovvertire un paradigma liso ed ingenuo

Per quanto riguarda le idee  
di cui parleremo oggi,  
quelli fra cui esse non sono penetrate  
sono purtroppo  
i politici ed i Bio conservazionisti.

Che sono proprio quelli che potrebbero  
realizzarle

# IDEA PORTANTE:

## Come si difende la Natura?

- A) Come nei film western:  
si ammazzano (o si allontanano) i CATTIVI  
(noi)



Gashak.m4a

- B) Si COPIA Dio (come Woody Allen)

## A) Allontanare i cattivi: funziona?



...Parrebbe di sì...

Tuttavia c'è un retropensiero, non  
esplicito...



# Il Centurione



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# La mano dell'uomo...



# COSA METTIAMO ATTORNO A UNA CENTRALE NUCLEARE?

- **Nulla: le centrali nucleari non vanno fatte!**
- .. Prati, Geigers e reticolati;
- .. Orti per le mense dei lavoratori, alberi da frutto, animali selvatici: un simpatico ed accattivante zoo
- **Ma:....solo attorno ad una centrale nucleare?**

# NO: NON SOLO attorno ad una centrale nucleare

Anche attorno a :

- Altri impianti;
- Zone industriali;
- Infrastrutture,
- Strade
- Parchi cittadini
- Scuole
- Centri amministrativi e commerciali...

**DAPPERTUTTO!!**

## Siamo soli nell'Universo?

of theory and principles, is the result. With leading figures worldwide, the field is growing rapidly and today embraces a richness of perspectives, which provide hybrid vigor.

Into this dynamic field arrives the wonderful book in your hand written by Vittorio Ingegnoli. This is the seventh landscape-ecology book on my shelf authored or edited by Sandro Pignatti, Almo Farina, and Dr. Ingegnoli, all leaders in Italian landscape ecology. These books reveal a richness of theory, perceptive syntheses, many useful Italian and worldwide applications, and distinct areas where Italian research leads the way. Perhaps only Australia and the USA rival Italy in the number of valuable landscape-ecology books available.

I am the ecologist who perched on a log, and am not only an admirer of this Italian work, but also have learned much from Italian landscapes. As a child I ran around the Ponte Vecchio, liked Giotto, wondered where Dante got his information, and explored from the Alps (where my uncle served just before World War I) to Taormina (where my aunt is buried). Much later, my workshop-seminars in Florence for students and professionals were followed, in turn, by publishing a landscape-ecology article in Italian, doing transects to the most remote spots in Venice, and receiving a Università degli Studi di Firenze medal and honorary membership in the Società Italiana di Ecologia del Paesaggio. Although I have published on the spatial patterns produced by different processes, from atop a tower in San Gimignano, Dr. Ingegnoli taught me a new pattern, the distinctive stable fine-scale result of centuries of trial-and-error by rural landowners in Europe and elsewhere.

Every landscape ecologist will appreciate what Vittorio Ingegnoli has done for us in this book. The diverse European and North American approaches and perspectives have finally coalesced. An amazingly rich palette of methods, both

## 11.1.1 The Concept of Naturalness

In dictionaries the word “naturalness” is defined as the quality and/or condition of what is natural, but conservationists generally define it as the absence of human artefacts or influence. This is again a preconceived contrast between man and nature, forgetting that man is part of nature. What should be discussed is the modality through which man administrates nature rather than the right to manage nature.

Among the most important revolutions of the history of life were the emergence of prokaryotes, the emergence of eukaryotes, the development of multicellular organisms, the development of superior vertebrates and the emergence of man. Nevertheless, man does not realise all that. Trying to underline and preserve only the most natural habitats, in the sense of areas not influenced by human activities is not sufficient.

What is necessary is a concept of “diffuse naturalness”, which implies management of landscapes in the sense of a re-balancing, following ecological principles, and including the human habitat. Natural conservation must be diffused in the human habitat, for example, the conservation of historical or archaeological artefacts has to be exerted even in natural habitats.

In addition, the present concept of naturalness must abandon every Cartesian reference, in which nature, intended without history, is mechanistic and consequently can be dominated by man, who becomes the engineer of nature. Instead reality has to be intended as historical and evolutionary, in which order and disorder play equal roles. Nature is not determined once and forever, because it is open to unpredictable creative perspectives.

An agricultural landscape can be considered natural or not. The discrimination is not the presence of man or his changes on wild ecological systems, but man’s type of management, his abuse of technology, his differences with ethical principles and the disjunction between ecology and economy. Even an urban landscape can be considered as natural: this is a rare thing, limited to old villages in some mountains, but in theory it is possible and historically it happened.

# Birds enjoy warm water!

## Again: whats «Natural»?

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For this purpose we can refer to an indicative episode. In an agricultural landscape near Parma (northern Italy) local ecologists and environmentalists protested against the building of a sugar factory which used many hectares of fields to contain the warm water expelled from the technical plant. This protest had no consequences. A few years after, the Italian Association for Bird Protection (LIPU) opened a site there for bird watching, because of the return of a relative rare species of stilt bird (*Himantopus himantopus*) exactly there, attracted by warm water!

We know that admitting the possibility to consider an agricultural or even an urban landscapes as natural can be source of discussion and/or disagreement with many conservationists. But, as we have seen in the last section (9.3) on ethics, we must separate the abuses of man which lead to nature destruction from the transformation of parts of natural landscapes following natural laws, in which the species *Homo sapiens* takes part.

## Co-evolution?

The concept of landscape seems to be reduced to beautiful scenery! Moreover the role of man is considered as negative. But we can not forget the result produced by the application of these rules in the Abruzzo National Park (in the Apennines, central Italy). In one of the core areas of the park the sheep herds were removed to improve the naturalness of the brown bear (*Ursus arctos marsicanus*) habitat; as a consequence, many bears followed the herds, going outside the park. In fact, many centuries of co-evolution between bears and shepherds can not be cancelled by a preconceived idea of nature without men.

Episodes like this could enlarge the different positions of American and European conservationists, considering wilderness areas vs cultural landscapes. But ethologically speaking (Mainardi, personal communication), co-evolution is a fundamental process even between man and nature.

If some conservationist insists on underlining the contrast between man and nature, that can be dangerous especially when the aim of the study is a conservation plan. In a vision like this, the ecotopes or the landscape units to be protected, such as parks and reserves, are generally considered as islands. This fact may be regarded as an alibi, leaving the surrounding landscape free from any bond to them, with a consequent further degradation.

What is more, the destruction of crucial habitats (both natural and human), which constitutes the first cause of biodiversity decline, is normally considered less important than pollution problems.

The increase of protected areas in the world (emerged lands) had a positive growth impulse after the 1970s.

# Co-evolution and Possible Design

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# Orsi, etologia, not only pollution

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# Esempio di Green Bridge

## 11.4 Conservation Biology, Bioengineering and Restoration Ecology

### 11.4.1 Bioengineering

The necessity to bypass many types of human barriers in densely inhabited territories requires a strengthening of ecological network applications together with bioengineering designs. Avoiding railways and highways constitutes the main problem, together with the re-naturalisation of channels. An example of green bridge design is shown in Fig. 11.5.

GREEN  
BRIDGES

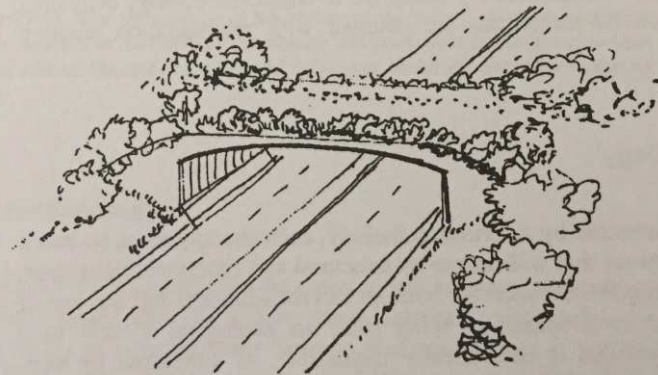


Fig. 11.5 An example of a green bridge crossing a road. These bridge have to be enlarged in their connections with the territory

# Il ruolo dell'uomo

## 12.1

### Design and Planning: An Ecological and Ethological Process

#### 12.1.1

#### The Process of Design

From an ecological viewpoint, the role of man in nature should be principally managerial, because he should be conscious of possessing many attributes of the process which has evolved him, such as creativity, capacity to reach a goal, abstracting capacity of perception, capacity to organise space, etc. (Lorenz 1983; Ingegnoli 1980). In antiquity, man was conscious of this basic role: all religions emphasised it. We know that even in science, an evolutionary...

# Genius Loci: chi fu mai costui?

## Vernacular Design and Planning

Historical examples show that, since ancient times and up to the first half of the nineteenth century, only large cities and their suburban landscapes and some parts of the agriculturally most intensive landscapes were planned with a high degree of human technology and economical needs in a “rational” way, even in conflict with natural laws. Some parts of the territorial infrastructure could be added, such as bridges, main international roads, harbours, aqueducts, first railways, etc.; however the formation of a complete technical network is very recent, and particularly highway systems, oil and electrical powerlines, large super-markets, concentrated industrial areas, inter-ports and airports.

Let us observe the “spontaneous” settlements: they have nothing of spontaneous in the sense of casual; they were planned with great attention and with much more attention to the natural characters of the locality than is given today. The old motto “genius loci” enhanced this capacity of our ancestors to understand and to follow the “spirit” of the landscape unit in which they wanted to settle. We have to underline that an urban ecosystem can be formed only through the mutualism and the coevolution of all the other ecosystems. *Civitas* (city), even if it was a small one, was never an isolated concept for Romans, rather the integration between the concepts of *urbs* (town) and *territorium* (territory). An example of an old settlement within an alpine landscape can be rich in significance (Fig. 12.1).

The localisation of each small town or village is accurately planned in relation to the geomorphology, the exposition of the slope, the heterogeneity of the ecological mosaic of vegetation, the presence of water resources, etc. The possibility to find some ecosystem amenable to being transformed without destroying or seriously damaging the landscape structure and function is another important factor. A village shows the form of an organism, with the characters just described for a single house. Local tradition emerges from the smallest scale (details) up to the large one (village-fields configuration).

THIS WAS NOT  
GOD'S AIM

# Il ruolo dei cambiamenti

Changes produced by man are in some cases favourable to animals, especially of small-medium size. New associative relationships can emerge, thus new communities. Urban waste discharges become a resource for some animals, influencing their behaviour, as for gulls, many populations of which have abandoned the sea coast for towns. Urban parks, especially because of their island effect, can host unusual species, like kingfishers (*Alcedo atthis*), or night heron (*Nycticorax nycticorax*).

Urban buildings also have ecological effects. They affect microclimate behaviour, geomorphology characters and urban topography, and resemble natural rock faces. We may have diverse types of districts characterised by many typologies of buildings: from the closed courtyards of a historical centre to scattered cottages with small gardens, to high towers in recent tertiary zones, etc. Many of the recent residential districts are too overcrowded and lack social local centres, remaining mainly as large dormitories.

The largest cities have incorporated many peripheral villages or towns, thus the growing process generates many contrasts to urban ecotopes: we may find an industry near a garden or a big condominium near an old villa. These contrasts produce in general ecological nonsense and traffic difficulties. The differences between the structure of the city and the structure of their peripheral suburban belts becomes increasingly fragile. The few suburban settlements that were strictly near the main entrances of the city (even only a century ago) have been incorporated into the growing city and the recent peripheral ecotopes show a confused structure, which contaminate also the rural landscapes.

An idea of the drastic transformation process of

# Metodologie (non credere a tutto quanto ti dicono)

1. Delimitation of the main structural elements of the examined territory, e.g. a landscape complex unit and its simple sub-units; hierarchic levels of spatio-temporal scales become important and geographic-administrative divisions have to be related to the ecological structure. Climatic data, geomorphologic data, vegetation belts, broad human land use and structural networks (natural and human) become necessities for this integration. This phase needs also the identification of the broader scale landscape system (region or sub-region), and a preliminary ecological analysis of the borders.
2. Determination of the main vegetation types and human land uses, identification of the physiotopes, biotopes, landscape role, thus first identification of ecotopes.
3. Research and reconstruction of at least two past states of the given territory comparable with the present ecological structure, with their vegetation types and human land uses (from a few decades to a few centuries, depending on available historical data and the scale of interest).
4. Analysis and first evaluation of the ecological states of the examined landscape units, using ecological considerations, particularly what was explained in Chap. 7 and 8, starting from the present and going back to past situations. This phase can be very complex and needs also accurate field studies, thus many iterative passages from detailed scale to the scale of interest.
5. Diagnostic determination, beginning from the study of the general dynamics of the examined landscape units, and compared with the regional one. The evaluation of the landscape alterations and pathologies (see Chap. 5). The evaluation of the ecotopes may be the conclusive part (putting in evidence also eventual detail or spot problems).
6. Pre-therapeutic study. Needed interventions derived from landscape ecological alterations. Limits are given by ecological integrity and basic human needs with respect to the considered ecological system, by the ecological adaptability of the landscape structures and functions, by exceptional cultural indications, by the definition of the main possible objectives.
7. First design strategy. Delineation of major areas for nature conservation, human activities, territorial infrastructures, main roads, ecological networks, etc.; their dimensioning, their attributes, preliminary synthetic ecological controls, controls of sustainability (even ecological economics) and possible alternatives and scenarios and controls.
8. Plan design. Choice of the best scenario. Development of the plan design with sub-controls before the detailed design. Prescriptions on managing the plan and on its main subsystems (water, cultivation, housing, biodiversity conservation, etc.). Executive examples and details. Priorities and successive sub-plan strategies. Plan illustration to the local professional society and to people.
9. Control evaluation of the effects of planning on the ecological state of the landscape unit and surroundings landscapes. Possible monitoring webs.

# Metodi: idem come sopra

requirements.

- *Structural congruence.* A good plan must maintain at any scale a structural congruence. This signifies that transformations can not cancel or alter the spatial relationships among geomorphology and vegetation, hydrology and agriculture, old settlements and their grain and contrast with the surrounding, etc. Instead, design criteria have to follow historical (both natural and human) signs.
- *Patch shape.* To accomplish several key functions, an ecologically optimum patch shape usually has a large core, with some curvilinear boundaries and narrow lobes, and depends on orientation angle relative to surrounding flows (Forman 1995).
- *Aggregates with outliers.* Land containing humans is best arranged ecologically by aggregating land uses, yet maintaining small patches and corridors of nature throughout developed areas, as well as outliers of human activity spatially arranged along major boundaries (Forman 1995).
- *Local compensation.* Serious transformations which alter many characters of a landscape unit have to be compensated through an ecologically balanced therapy inside the same unit, not far from the degradation.
- *Indispensable patterns.* Top-priority patterns for protection, with no known substitute for their ecological benefits, are a few large natural vegetation patches, wide vegetated corridors protecting water courses, connectivity for movement of key species among large patches, and small patches and corridors providing heterogeneous bits of nature throughout developed areas (Forman 1995).
- *Attractors.* In the presence of a landscape element presenting a high attractor potential, it is necessary to insert constraints to avoid the formation of a barrier due to human activities.
- *Source-sink and boundaries.* Any landscape element presents traits of its boundaries sensitive to the surrounding disposition of source and sink structures. Consequently it is necessary for planning to leave the wider possibility of connections and fluxes regarding those traits.
- *Complementarity.* The main ecological law (not too much, not too little, just enough) underlines the necessity to avoid any excess; therefore each sub-system of landscape elements needs to have the presence of at least one complementary component.

## Cosa c'è da fare?





## 95 Tesi..

- *Tesi 0: L'impatto delle attività umane sull'ambiente può essere positivo.*
- *Tesi 1. L'impatto regolato e progettato di flora e fauna selvatiche sulle città le rende migliori.*
- *Tesi 2: La fauna e la flora (selvatiche) hanno un ruolo fondamentale nel paesaggio urbano.*
- *Tesi 3: L'opera dell'uomo può connotare l'ambiente naturale con un impatto positivo per esso.*
- *Tesi 4: La progettazione dell'ambiente urbano deve tener conto del mosaico ambientale.*
- *Tesi 5: La gestione del territorio deve comprendere aspetti e realizzazioni progettuali con la finalità di arricchirlo dispiegando il ventaglio di specie compatibili con gli ecosistemi.*

# Antitesi...

- *Tesi 6: In particolare la gestione delle interfacce fra le infrastrutture e l'ambiente offre la necessità di un'analisi di compatibilità e di sostenibilità ecologica delle nicchie create.*
- *Tesi 7: Una caratterizzazione sistematica degli ambienti naturali ed urbani in riferimento alle rispettive compatibilità e potenze biologiche va posta in essere.*
- *Tesi 8: Su questi temi la filosofia sta a zero ed il lavoro analitico è tutto.*
- *Tesi 9: Il costo di costruzione di un database di caratterizzazione ambientale è  $\approx 0$ .*
- *Tesi 10: I costi di intervento sul tessuto urbano e sui tessuti industriali è  $o(\text{interventi ordinari})^*$        $*o\text{-piccolo} \cong$  di ordine di grandezza inferiore.*

## ..E sintesi!

- *Tesi 11: Per essere realizzato, il progetto di una città rigenerata in un ambiente rigenerato, esso deve essere posto al centro dell'agenda politica.*
  - *Tesi 12: Metodi, modelli e strumenti di valutazione embrionali per costruire questo percorso progettuale sono disponibili.*
  - *Tesi 13: Il resto verrà sviluppato in corso d'opera.*
- Ossevazione: neanche all'inizio del Progetto Manhattan tutti i metodi e modelli necessari erano integralmente disponibili.*
- *Tesi 14: Questo occorre fare.*

# Grazie per la pazienza!

