



Rome, 23rd June 2011
Parallel Session

Present and future role of forest resources in the socio-economic development of rural areas

Parallel Session 1

Forests, conservation of biodiversity, landscape protection and public services.

The Life+ Project DINAMO to increase the provision of ecosystem services in a rural area in Southern Italy

Blasi F., Marino D., Gaglioppa P.

*Filippo Blasi*¹

¹University of Molise
blasifilippo@gmail.com

Ecosystem services and agriculture

- Ecosystem services are the benefits that man receives from ecosystems (MA, 2005; Daily, 1997).
- Agriculture receives and offers ecosystem services. We can, therefore, identify ecosystem services : *to* agriculture and *from* agriculture.

Ecosystem services and agriculture

Ecosystem services to agriculture

- Nutrient cycling
- Water provision
- Genetic biodiversity
- Soil retention
- Pollination
- Dung burial
- Natural control of plant pests
- Habitat for beneficial insects
- Water purification
- Atmospheric regulation

Ecosystem services and agriculture

Ecosystem services from agriculture

- Food production
- Aesthetic landscapes
- Wildlife habitat

The valuation of ecosystem services

Unlike food, fibers and fuels produced by the agroecosystems, the other ecosystem services in agriculture do not have a market which gives them a monetary value.

Quantification of ecosystem services → valuation methods:

- *Contingent valuation*
- *Avoided costs*
- *Substitution costs*
- *“Factor income” approaches*
- *Hedonic pricing*
- *Travel costs*

The valuation methods

- *Contingent valuation*

this technique consists in asking individuals, through the use of specific questionnaires, how willing they are to pay for the benefits offered by ecosystem services from agriculture or how much they would like to receive as compensation for the loss of said benefits.

- *Avoided costs*

the ecosystem services allow society to not face social costs which they would have to sustain if said services were inexistent.

The valuation methods

- *Substitution costs*

some ecosystem services can be substituted with technological systems which carry out the same functions.

- *“Factor income” approaches*

the ecosystem services can increase agricultural activity income. For example, the *Water supply* support service can increase the yield of the harvest without modifying costs, and therefore increase the farmers' income.

The valuation methods

- *Hedonic pricing*

this valuation technique estimates the value of ecosystem services to and from agriculture, based on the willingness that individuals have to pay for land property, where it is possible to benefit from services, upon the variation of the characteristics that the services confer upon the property itself.

- *Travel costs*

in order to visit an area of ecological prestige, people have to cope with the cost of reaching said area, staying there, paying for meals and possible taxes. Based on these costs, which express the willingness to pay for use of ecosystem services, the value of the services offered by agriculture can be derived.

The economic value of Ecosystem services

Ecosystem services	Economic value	References
Biological control	24 \$ ha ⁻¹ yr ⁻¹	Costanza et al., 1997
Soil structure and fertility	25 billion \$ yr ⁻¹ (world)	Pimentel et al., 1997
Pollination	15 billion \$ yr ⁻¹ (USA)	Morse & Calderone, 2000
Aesthetic landscapes	21 \$ ha ⁻¹ (New Zeland)	Sandhu et al., 2008

The Life+ DINAMO Project

DINAMO (LIFE08 NAT/IT/000324):

Increasing endangered bioDiversity iN Agricultural and semi-natural areas: innovative Management mQdel

The Life+ DINAMO Project

DINAMO (LIFE08 NAT/IT/000324):

Increasing endangered bioDiversity iN Agricultural and semi-natural areas: innovative Management mOdel

The aim of DIANAMO is to conserve, increase and monitor biodiversity and the ecosystem services in the agricultural and seminatural areas of Southern Molise, availing itself of the collaboration of farmers and local administrations

The Life+ DINAMO Project

The partners of the Project are:

- University of Molise
- CIA – Confederazione Italiana Agricoltori
- ENEA – Agenzia nazionale per le nuove tecnologie, l'energia e lo sviluppo economico sostenibile
- IGEAM DD

The Project involves:

- 24 farms
- 4 municipalities (Petacciato, Termoli, Campomarino, Guglionesi)
- The environmental organization “Ambiente Basso Molise Onlus”

DINAMO: conservation actions

C.1	Artificial nests for Red Kite (<i>Milvus milvus</i>)
C.2	Artificial nests for the European roller (<i>Coracias garrulus</i>)
C.3	Protection of Calandra lark (<i>Melanocorypha calandra</i>), Tawny pipit (<i>Anthus campestris</i>) and Short-toed Lark (<i>Calandrella brachydactyla</i>) nesting in grain crops and lucerne and seed grass parcels through flushing bars
C.4	Restoration of through to increase availability of suitable habitats for the Appennine Yellow bellied Toad (<i>Bombina pachypus</i>) and the Italian crested newt (<i>T. carnifex</i>)
C.5	Planting with native trees and shrubs near trenches and river edges in public areas
C.6	Planting of trees and shrubs in public areas
C.7	Recovery of indigenous vegetation in marginal areas and along farm boundaries
C.8	Ex-situ conservation and propagation of native shrubs and trees ecotypes

BEVILACQUA

SAN MARTINO DI BEVILACQUA



Z.P.S. IT7228236 - LAGO DI GUARDALFIERA FOCE DEL Fiume Tevere

Habitat presenti SICAD (Foreste a galena di Salix alba e Populus alba)

Specie di tutela:

- Emys orbicularis* - Tartaruga palustre
- Testudo hermanni* - Testuggine di hermanni
- Arthus campestris* - Calandrino
- Calandrella brachydactyla* - Calandrella
- Lullula arborea* - Totta villa
- Melanocorypha calandria* - Calandria
- Circus aeruginosus* - Falco di palude
- Circus cyaneus* - Albanella reale
- Circus pygargus* - Albanella minore
- Falco sublineatus* - Lodolaio eurasiatico
- Falco vespertinus* - Falco cuculo
- Milvus migrans* - Nibbio bruno
- Milvus milvus* - Nibbio reale
- Coracias garrulus* - Ghiandaia marina

- Linea arancione: Limiti azienda
- Linea verde: Strada a Protezione Speciale
- Linea grigia: Confine comunale
- Linea gialla: Sita d'Interesse Comunitario
- Linea blu: Corso d'acqua

DINAMO: the ecosystem services

- **Wildlife habitat**
- **Pollination**
- **Soil retention**
- **Gas regulation**
- **Aesthetic landscapes**

The valuation of ecosystem services

- *Wildlife habitat*

Valuation of the consumers' Willingness To Pay for bird conservation.

- *Pollination*

Bees, flies, birds and other animals provide crop pollination services.

Conserving wild pollinators and their habitat improves the level of pollination, leading to increased yields and income.

The valuation of ecosystem services

- *Soil retention*

The cultivated plants and vegetation along streams can reduce the loss of nutrients.

This service is important to preserve the useful nutrients for the plants grown.

- *Gas regulation*

Assessing the economic value of carbon fixation by plants.

The valuation of ecosystem services

- *Aesthetics landscapes*

Valuation of the consumers' Willingness To Pay for aesthetics landscapes.

The valuation of ecosystem services

Ecosystem services from agricultural and seminatural areas of southern Molise of interest for DINAMO and Conservation actions for which we would like to increase the monetary value of the services generated by the Project

	C.1	C.2	C.3	C.4	C.5	C.6	C.7	C.8
Wildlife habitat	X	X	X	X	X	X	X	
Pollination					X	X	X	
Soil retention					X	X	X	
Gas regulation					X	X	X	
Aesthetics					X	X	X	X

The valuation of ecosystem services

	Contingent valuation	Avoided cost	Replacement cost	Factor income
Wildlife habitat	x			
Pollination				x
Soil retention		x	x	
Gas regulation			x	
Aesthetics	x			

**See you for the next step:
the monetary valuation!**

Many thanks!

