Consiglio Nazionale delle Ricerche

ASTRI DI MAREMMA
INCONTRO CON LA SCIENZA

Clima, piante e paesaggio - cosa ci riserva il futuro?

Claudio Cantini
Agronomo Tecnologo
Istituto per la BioEconomia IBE

Massa Marittima 26 ottobre 2019

Consiglio Nazionale delle Ricerche

Azienda Sperimentale Santa Paolina
Follonica

conservazione caratterizzazione ed utilizzazione della biodiversità vegetale agraria

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ISTITUTO PER LA BIOECONOMIA

L'Istituto per la BioEconomia – IBE – è nato il 1 giugno 2019 dalla fusione dell'Istituto di Biometeorologia (IBIMET) e dell'Istituto per la Valorizzazione del Legno e delle Specie Arboree (IVALSA), che nel corso degli anni hanno sviluppato competenze e complementarietà nel settore strategico della bioeconomia. Questa disciplina, inclusiva delle attività che utilizzano bio-risorse rinnovabili della biosfera terrestre per produrre alimenti, materiali ed energia, comprende quindi il comparto della produzione primaria (agricoltura, foreste, pesca), così come i settori industriali di uso e trasformazione risorse , quello agroalimentare, quello del legno, parte dell'industria chimica, delle biotecnologie e dell'energia. Le strategie di sostenibilità ambientale e dell'uso delle risorse, di riduzione degli impatti, del rafforzamento della resilienza e supporto alla mitigazione sono incluse in questa tematica, che ha quindi una forte valenza interdisciplinare. Una bioeconomia degna di questo nome e collocata in questo momento storico di cambiamento non può prescindere dallo conoscenza dei fattori che regolano la funzione e la sopravvivenza dei sistemi antropizzati, e quindi da meteorologia, climatologia e oceanografia, che costituiscono parte integrante di questo Istituto.

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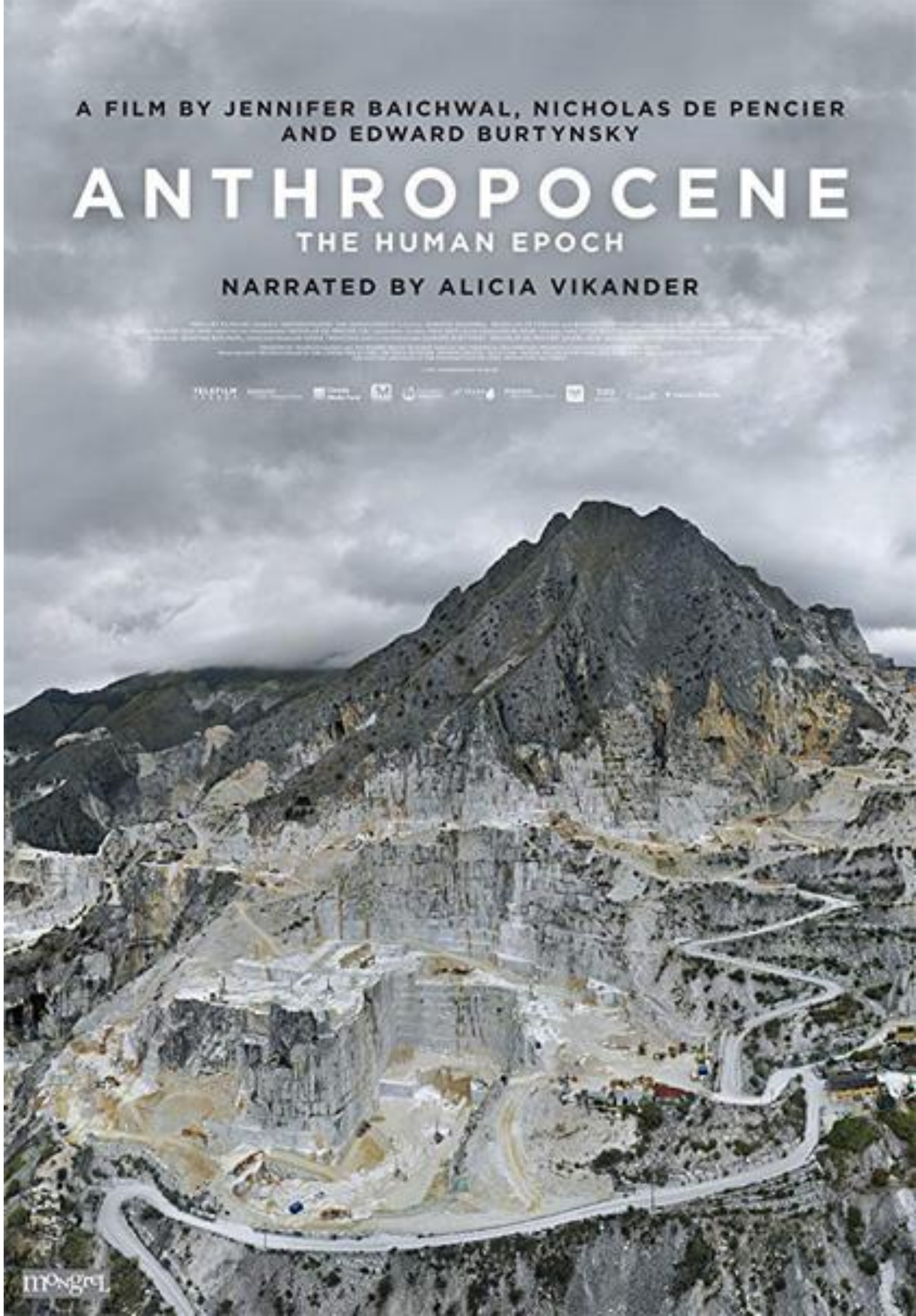
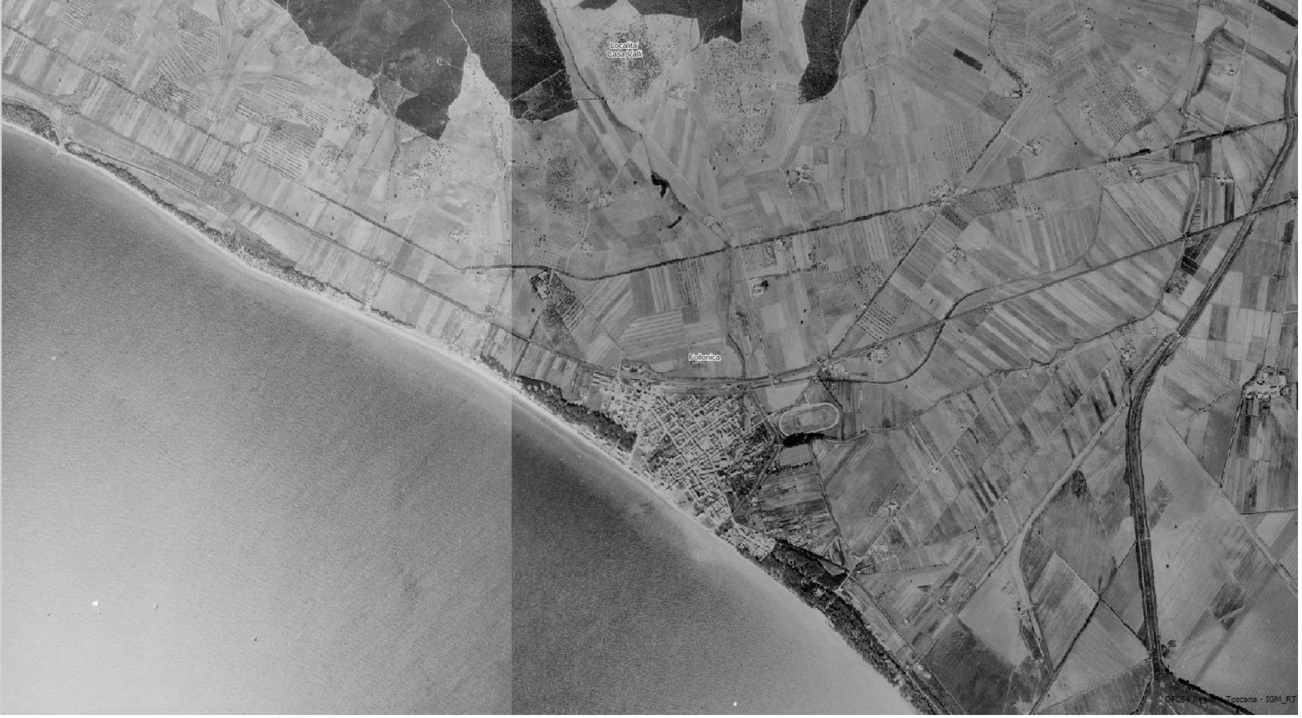



LAGO DI RIMIGLIANO
VIA DELLE CALDANELLE
VENTURINA
FIUME CORNIA
VIA EMILIA SCAURI
BARATTI
POPULONIA
LAGO DI PIOMBINO
VIGNALE
VIA AURELIA VETUS
MARE TIRRENO
PIOMBINO


Localita'
Casa Valli
Follonica

1954


Localita'
Casa Valli
Follonica
OFC54 Regione Toscana - IGM_RT, OFC13 AGEA_RT

2014

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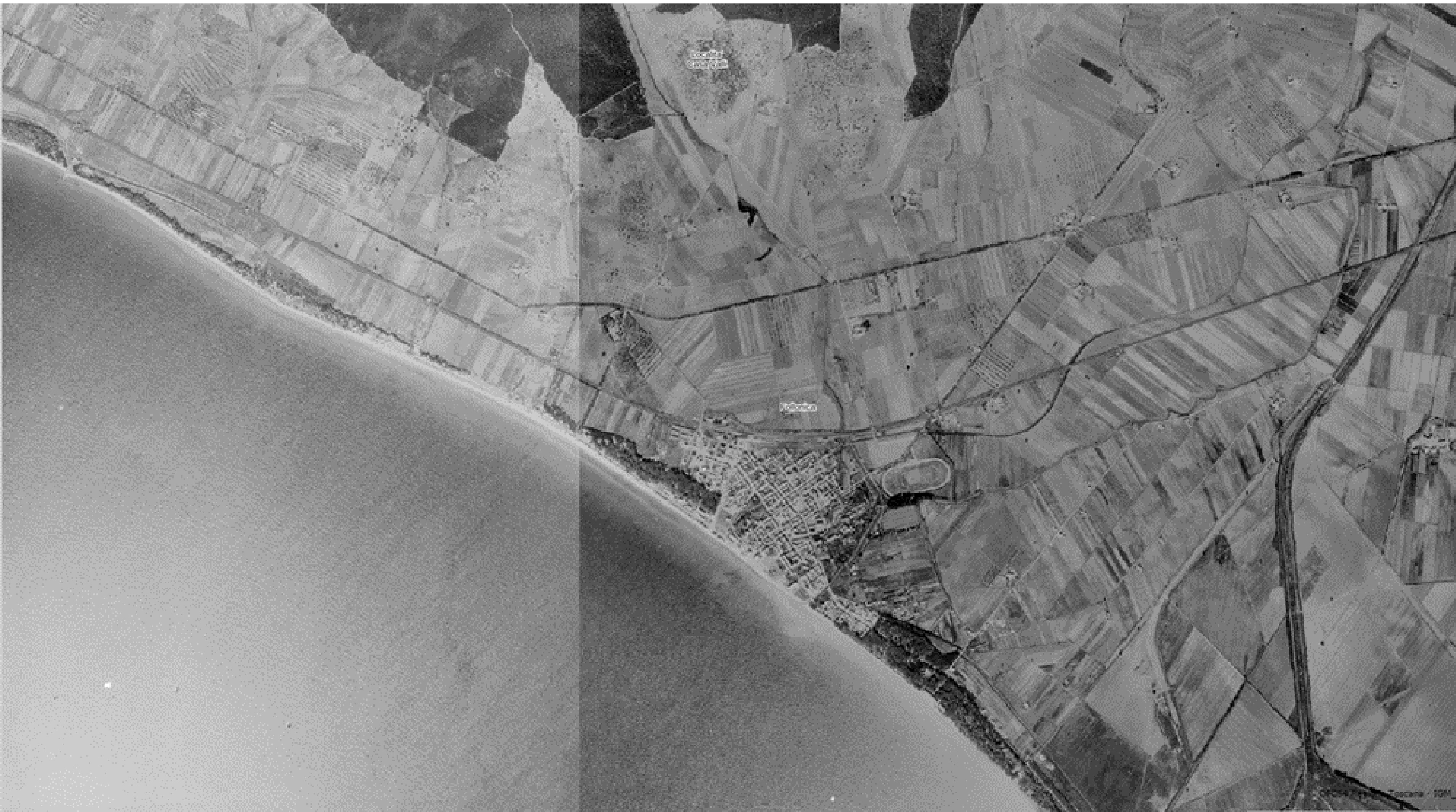

A. 1 – "S. Paolina" lato Aurelia

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Follonica - Spiaggia di Levante e Colonia C. R. I.

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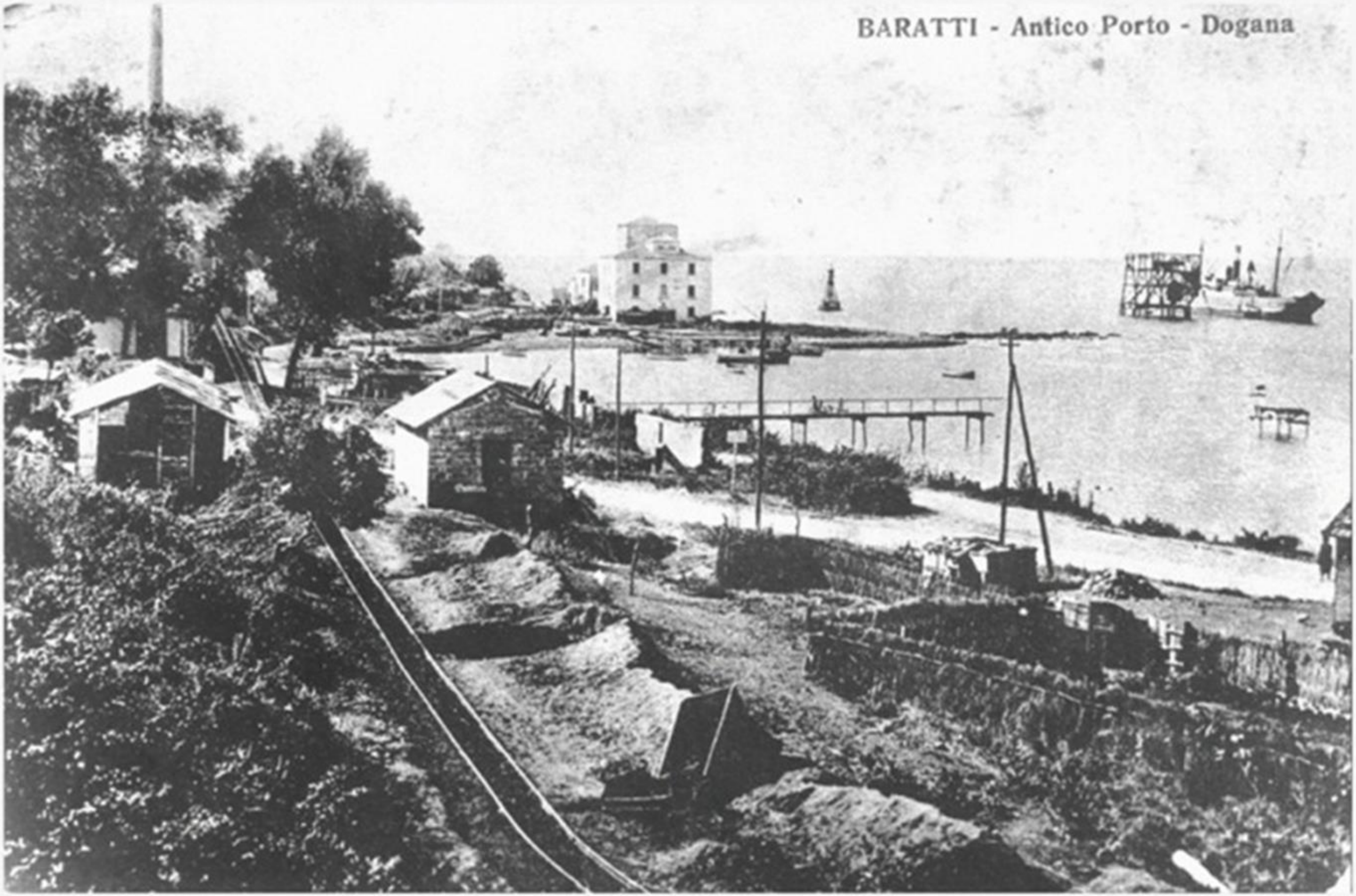

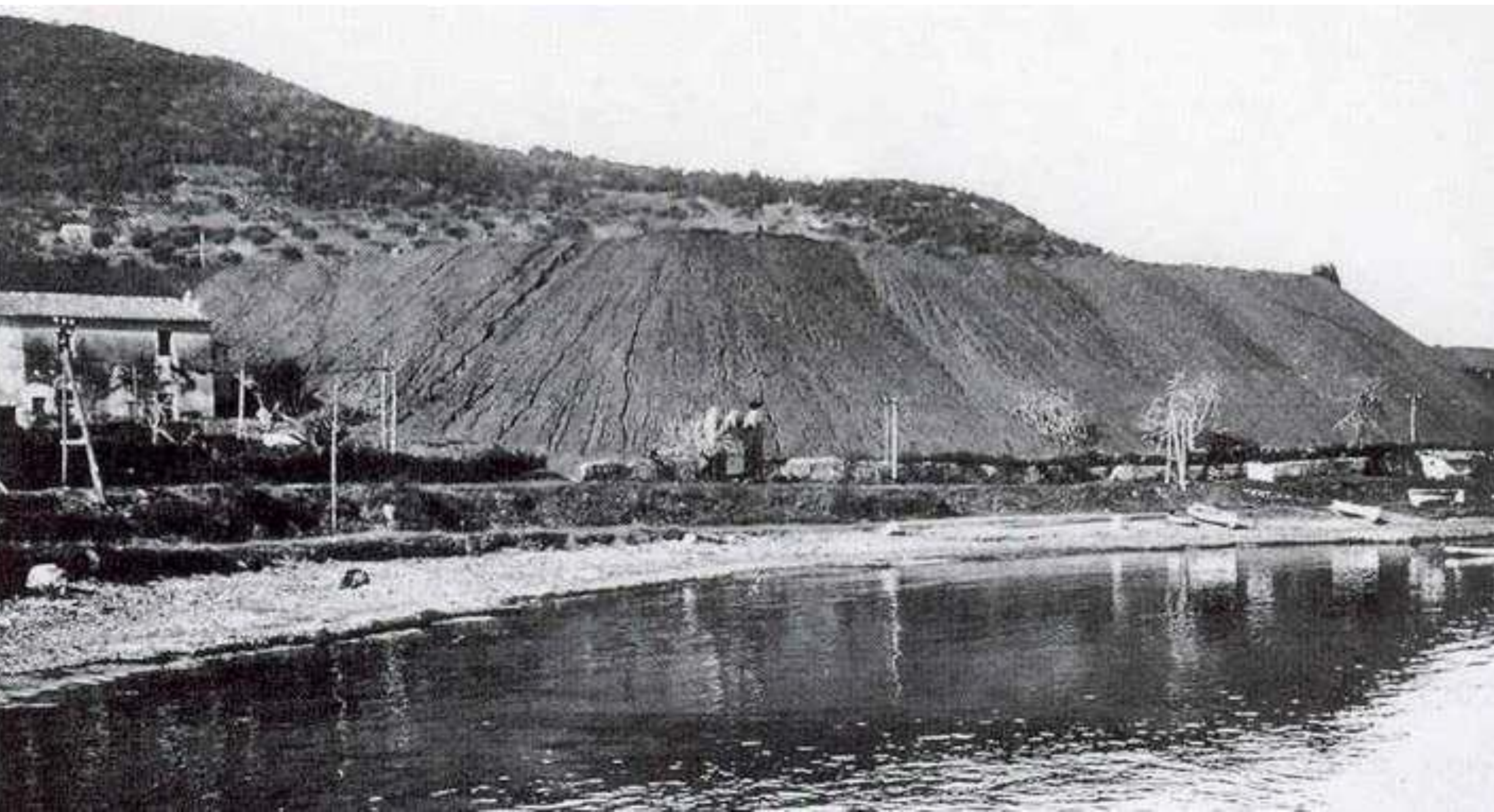


CAMPING
LA`POLVERIERA


Xylella Fastidiosa Active Containment Through a multidisciplinary-Oriented Research Strategy
Stakeholder platform
Reserved Area
Supporting Organisations
Partners
Contacts
Members
info@xfactorsproject.eu
XF ACTORS
HOME
ABOUT
PUBLICATIONS
RESEARCH
COMMUNICATION
LEGISLATION
NEWSLETTER
PICTURES OF THE SYMPTOMS CAUSED BY XYLELLA FASTIDIOSA IN HOST PLANTS
A collection of pictures showing symptoms associated with the presence of *Xylella fastidiosa* in susceptible host plants in the different Countries where the pathogen is known to occur.
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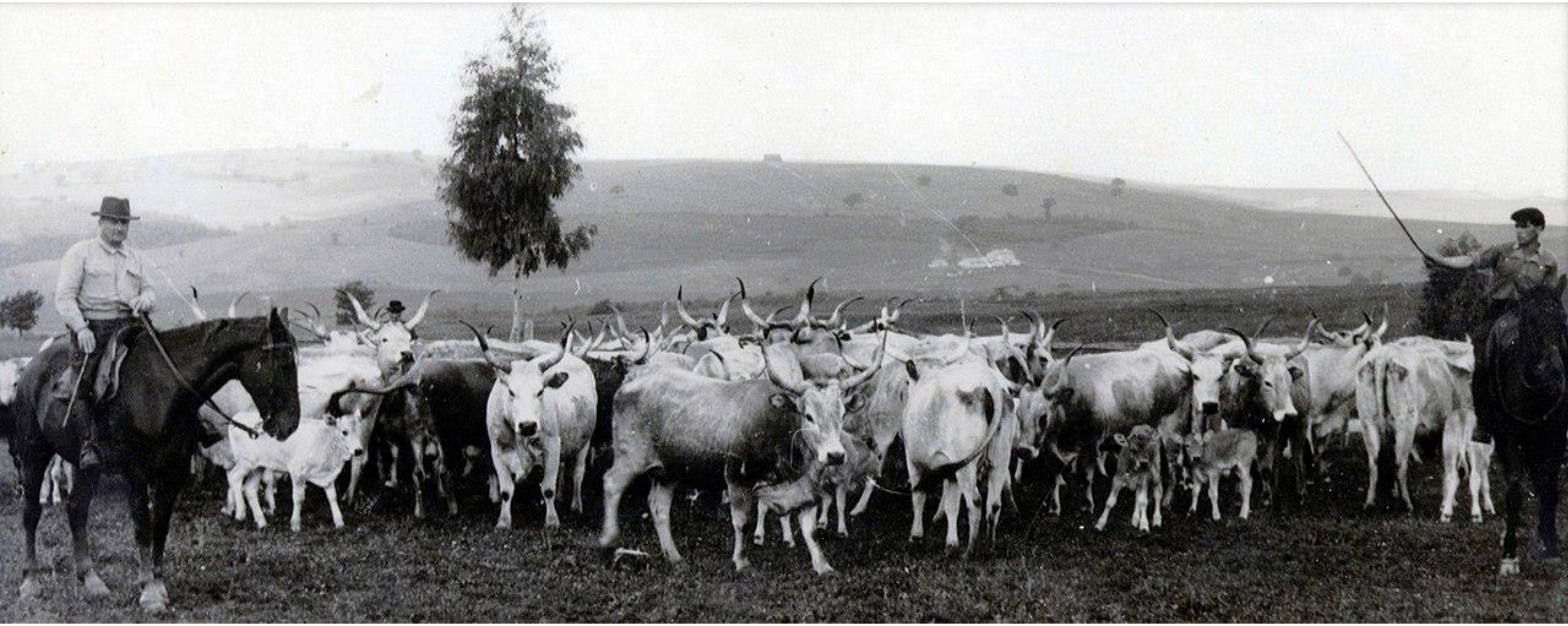

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La natura / L'uomo

Contents lists available at ScienceDirect

Environmental and Experimental Botany

journal homepage: www.elsevier.com/locate/envexpbot

The climatic challenge: Which plants will people use in the next century?

J.S. Borrell[a,*], S. Dodsworth[b], F. Forest[a], O.A. Pérez-Escobar[a], M.A. Lee[a], E. Mattana[c], P.C. Stevenson[a,d], M.-J.R. Howes[a,e], H.W. Pritchard[c], D. Ballesteros[c], B. Kusumoto[a,f], I. Ondo[a], J. Moat[a], W. Milliken[a], P. Ryan[a], T. Ulian[c], S. Pironon[a]

[a] Royal Botanic Gardens, Kew, Richmond, Surrey, TW9 3AE, UK
[b] School of Life Sciences, University of Bedfordshire, Luton, LU1 3JU, UK
[c] Royal Botanic Gardens, Kew, Wellcome Trust Millennium Building, Wakehurst Place, Ardingly, West Sussex, RH17 6TN, UK
[d] Natural Resources Institute, University of Greenwich, Chatham, ME4 4TB, UK
[e] Institute of Pharmaceutical Science, King's College London, London, SE1 9NH, UK
[f] Faculty of Science, University of the Ryukyus, Nishihara, Okinawa, Japan

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Crop wild relatives
Domestication
Food security
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Sustainable development
Resilience

ABSTRACT

More than 31,000 useful plant species have been documented to fulfil needs and services for humans or the animals and environment we depend on. Despite this diversity, humans currently satisfy most requirements with surprisingly few plant species; for example, just three crops – rice, wheat and maize – comprise more than 50% of plant derived calories. Here, we synthesize the projected impact of global climatic change on useful plants across the spectrum of plant domestication. We illustrate the demographic, spatial, ecophysiological, chemical, functional, evolutionary and cultural traits that are likely to characterise useful plants and their resilience in the next century. Using this framework, we consider a range of possible pathways for future human use of plants. These are centred on two trade-offs: i) *diversification* versus *specialization* in the range of species we utilize, and ii) *substitution* of the species towards those better suited to future climate versus facilitating *adaptation* in our existing suite of dominant useful plants. In the coming century, major challenges to agriculture and biodiversity will be dominated by increased climatic variation, shifting species ranges, disruption to biotic interactions, nutrient limitation and emerging pests and pathogens. These challenges must be mitigated, whilst enhancing sustainable production to meet the needs of a growing population and a more resource intensive standard of living. With the continued erosion of biodiversity, our future ability to choose among these pathways and trade-offs is likely to be diminished.

SUBSTITUTION

Reliance on a relatively small number of highly domesticated major plants, but shifting towards a different suite of species, better suited to future conditions, in comparison with those we use today.

ADAPTATION

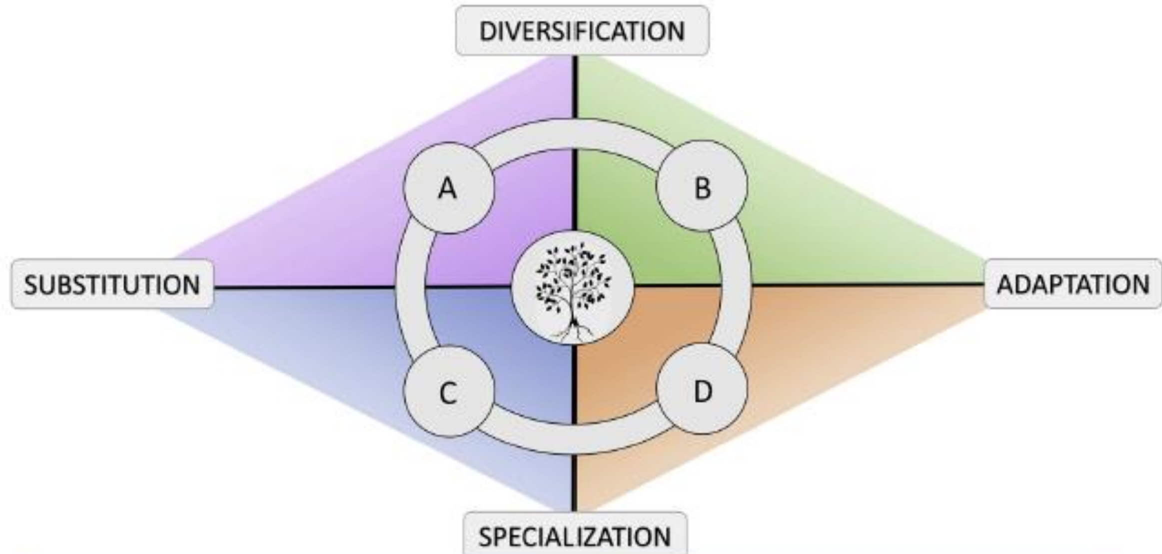
Develop and refine the same small number of highly domesticated major plants. Apply new approaches to maintain performance whilst enabling adaptation to global environmental change.

SPECIALIZATION

Reliance on an increasingly limited number of plant species, potentially due to loss of intra-specific diversity and underutilised plant species. Identification of novel useful plants hindered by biodiversity decline.

DIVERSIFICATION

Diversification in the number of useful plants, and an increase in the mean level of domestication, and use associated with them. This may encompass further domestication of useful wild or weakly domesticated species.



A) SUBSTITUTION-DIVERSIFICATION:
A shift in the predominant species utilised towards a suite of species better suited to future climate, combined with an overall increase in species diversity and mean level of domestication. Target substitute species are those putatively from locations where current climate matches the conditions likely to be more widespread in the future.

B) DIVERSIFICATION-ADAPTATION:
Accelerated efforts to facilitate adaptation of useful plants through emerging technologies, including genomic prediction, breeding and assisted gene flow whilst simultaneously diversifying the suite of plants we use and increasing their mean degree of domestication. Advances in technology may mean human mediated adaptation can be applied to more species at a faster rate.

C) SUBSTITUTION-SPECIALIZATION:
A shift in the predominant species utilised towards those better suited to future climate, combined with a trend towards species uniformity i.e. Substitution of our current reliance on a narrow set of highly domesticated species, for a better future climate-adapted, but similarly narrow, suite of useful plants.

D) SPECIALIZATION-ADAPTATION:
Accelerated efforts to adapt our current suite of useful plants to future climate characterise this pathway, however this is directed towards a continued focus and specialization on our current suite of major useful plants, resulting in increased homogenization in humanities global use of species.

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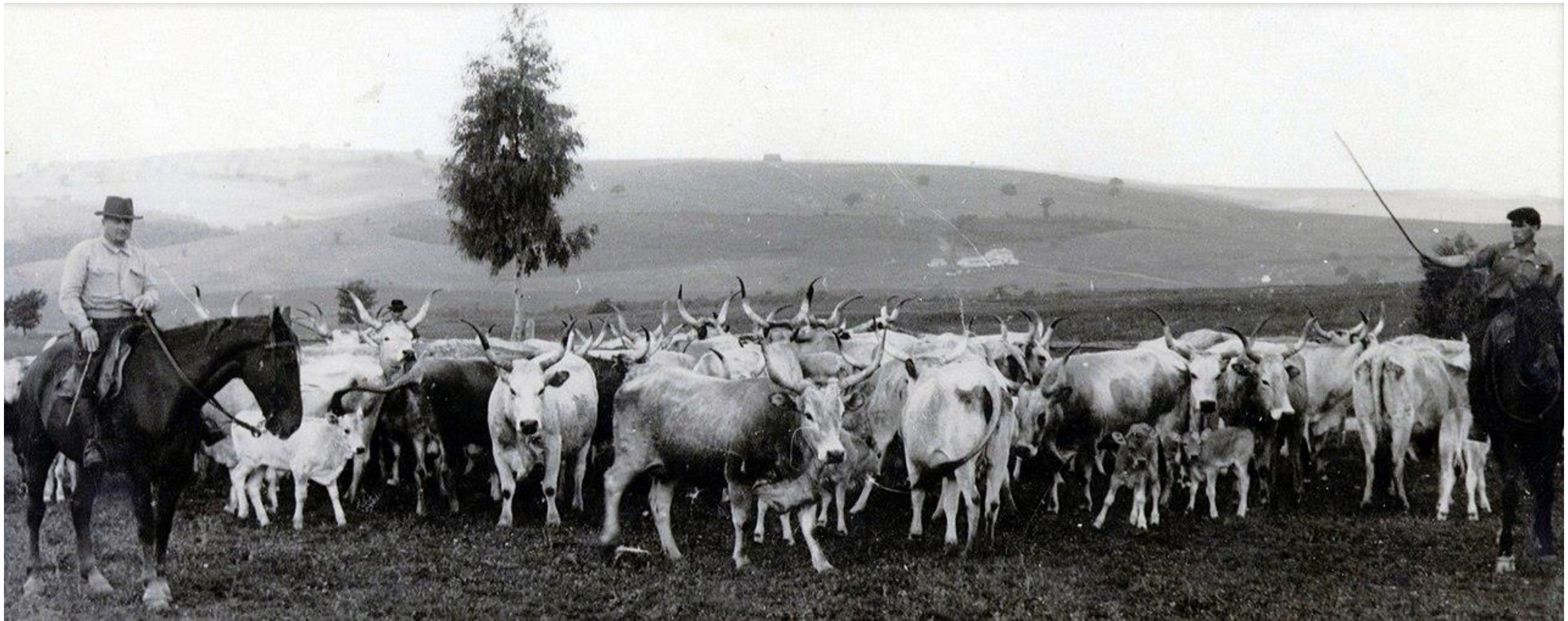
Viviamo in un pianete che è in continuo cambiamento, da sempre

Saranno i nostri comportamenti le nostre decisioni a forgiare il futuro che ci attende

Solo con una conoscenza profonda del passato ed una visione a tutto tondo, a lungo termine, permetterà di prendere decisioni in grado di modellare il paesaggio agricolo, urbano e naturale intorno a noi



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le Scienze
edizione italiana di Scientific American

L'effetto paradossale dei prodotti biologici sull'ambiente

Westend61/AGF

Uno studio su Inghilterra e Galles rivela che il passaggio a coltivazioni e allevamenti biologici, pur avendo un effetto positivo sull'ambiente locale, porterebbe a un forte calo della produzione. La conseguente necessità di importare merci a produzione intensiva dall'estero finirebbe quindi per provocare un aumento netto delle emissioni di gas serra anziché una diminuzione

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Eccessiva umanizzazione di piante ed animali