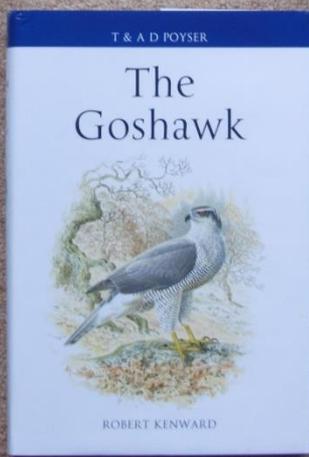
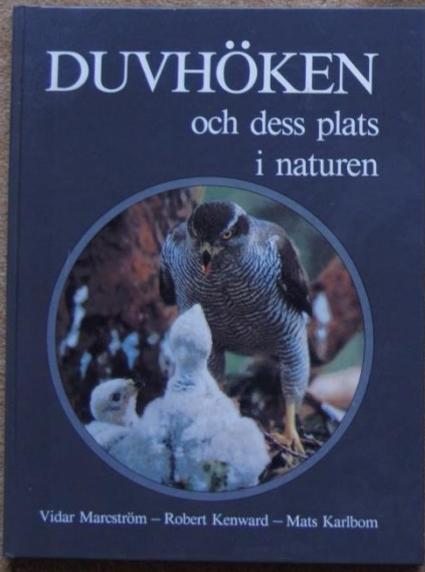
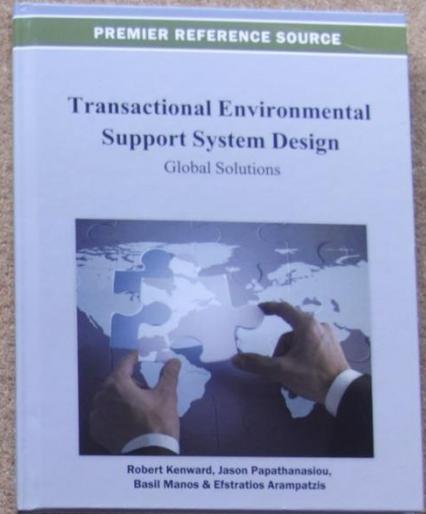
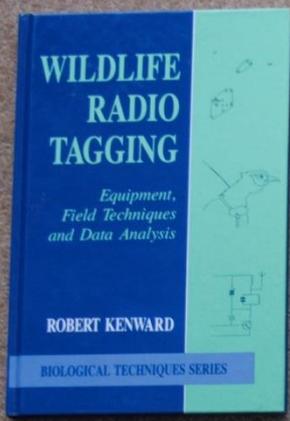
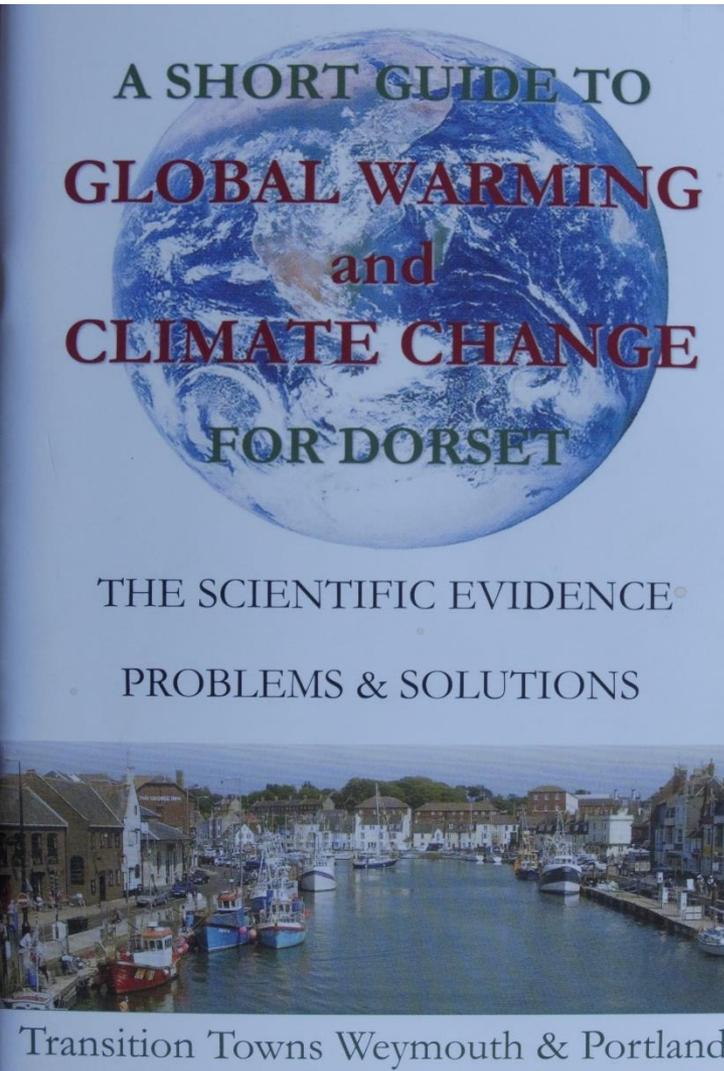


For DORSET COUNTY COUNCIL Executive Advisory Panel on Climate Change



SUME: Sustainable Use and Management of Ecosystems



Prof Robert Kenward

For IUCN: multilingual online network (2011) www.naturalliance.org

Naturalliance

Topics

A system for local communication

Restoring nature

Managing alien species

Gathering fungi, fruits and other natural products

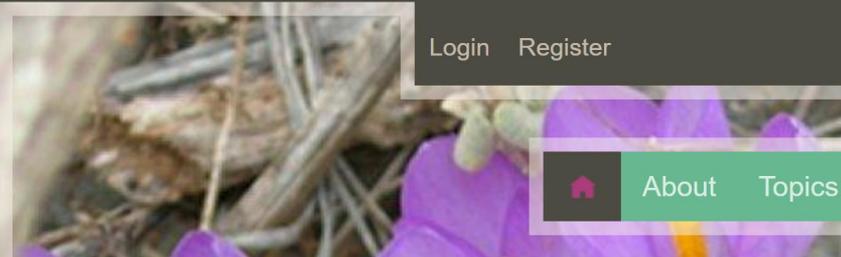
Arable farming & grazing livestock

Forestry or other tree cultivation for timber/fuel/fibre

Gardening and horticulture, including orchards and vineyards

Aquaculture or fishery for food

Fishing in rivers, lakes and the sea



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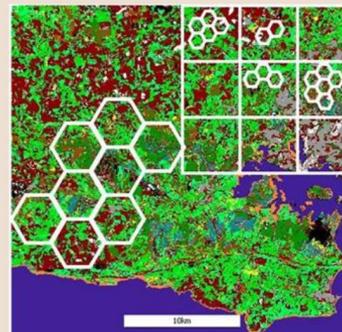
About

Topics

Species and Habitats

Weather forecasts are made on maps. In the same way, Naturalliance will use maps for forecasting the riches of nature, on your land, in our communities and across Europe. Like weather-forecasting, it will need science and appropriate maps to forecast how the riches of nature will change as land and climate changes. We intend you to use our forecasts to plan your land use to rebuild the riches of nature.

Our Science Pages explain that some of the science is available now, but much remains to be done. The scientists will need support, both funding and data, to do that work. That is what Naturalliance aims to help you provide, by donation and mapping. Donation is important to help develop the science. Mapping is important because forecasting can only be done without cost if the maps are



Satellite maps support population models to forecast large species.

Select your country and language



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Norge



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Србија



Slovensko



Slovenija



Svizzera



Sverige



Türkiye



Україна

for 40 languages, covers climate change

Naturalliance



United Kingdom (English)

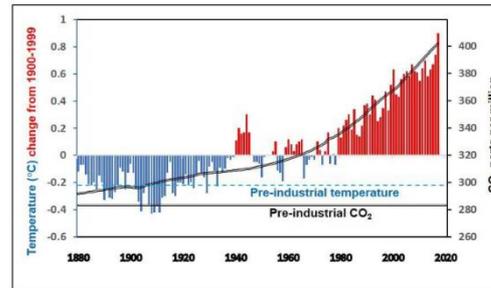
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We must reduce global warming

Our planet is warming. Some warming is to be expected, due to gradual expansion of the sun and to small changes in the earth's orbit. However, such effects can be predicted and cannot explain the rapid warming we have now. This warming has accelerated as human industry and travel has developed. It fits another prediction, made by a Swedish scientist 150 years ago, that an increase of some gasses could cause the atmosphere to trap more of the sun's warmth. The shocking temperature increase of the last 70 years can be explained by the rise in levels of 'greenhouse' gasses, of which carbon dioxide and methane are the most abundant.

[Learn more about greenhouse gasses](#)



Twelve years of retreat in the Norwegian Briksdal glacier, which covered the lake just a decade earlier.
© Mateusz Kurzik/Oleg Kozlov/Shutterstock

The rising temperature of the earth has two main effects. The most gradual effect is the melting of ice in the polar regions. The glaciers in Antarctica and Greenland are melting and flowing faster. They shed ice that covers land to melt in the sea and thus raise sea-levels around the world, by perhaps as much as a metre this century. The more rapid effect is the change in climate, which is associated with change in sea temperatures and in weather patterns affected by sea temperatures. More water vapour rises into the atmosphere from warmer seas, and changing weather patterns give some areas more rain and storms than usual. In contrast, other areas experience longer periods of dry weather and shortage of stored water.

[Read more about global warming](#)

What happens when climate changes

Human populations have become large thanks to the development of agriculture during several millennia of clement weather. However, the present rise in global temperature threatens humans and nature in four ways: flood, fire, famine and disease. Floods are made worse by rising seas in low areas and heavy rain which washes away soil elsewhere. Long periods of dry weather make vegetation more likely to dry, and then to burn in wild-fires. Drought and flood affect vegetation as food for humans and other animals, causing famines which can be made worse by shortages of



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[About](#)

[Use of Ecosystems](#)

[Protect and Sustain](#)

[Adapt to Change](#)

[Natural Governance](#)

[Some Solutions](#)

[For the Climate too?](#)

... with click-through to a satellite for UK.

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Our routes to the future?

The UK's first female Prime Minister, a chemistry graduate, emphasised the dangers of Global Warming a generation ago. Although one British company immediately developed a solar power initiative, it has taken 30 years for the [cost of photovoltaic solar](#) and wind-power to fall below the level of power from fossil fuels. A transition to renewable energy now makes economic sense.



Both PVsolar and wind, together with energy storage (for periods of windless darkness), are needed for full transition. Storage is now the main challenge. Batteries are expensive for long-term storage, and locations for pumped-water storage are limited, but Britain has a widespread hidden advantage. About 80% of households are on mains gas, which was earlier up to 60% hydrogen. Electricity from sun or wind can be stored as 'green' hydrogen, produced by electrolysis. Sheffield will soon host the [world's largest factory for electrolyzers](#). To remedy intermittency of sun and wind, hydrogen stored at community level can be used in three ways:

- (i) for electricity again, in fuel cells for vehicles or domestic combined-heat-&-power;
- (ii) burned in domestic gas supplies for cooking and heating;
- (iii) as a feedstock for producing liquid syn-fuels (e.g. methanol).

Towards a Hydrogen Society?

The challenges to transition are mainly in terms of governance. SolarPV has an advantage for households, provided they can export electricity at the price they pay for it. The cost of PVsolar systems is then repaid in 5-10 years. Although there is encouraging [smart-grid development](#), notably [at community level](#), will the UK soon encourage energy utilities to provide a fair 'strike price' for micro-generation, offer loans to install systems, and reward communities that do so?

A wider challenge is to persuade citizens to transition globally. Countries need to be prosperous enough to make transition affordable for citizens. Wars, whether with projectiles or trade, do not help. Wealthy countries need to focus aid carefully, on providing technology affordable in poor communities, along with economic

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HyDeploy testing for labs & 200 houses at Keele University.



H2Mobility for Metropolitan Police.

At Winfrith with Qinetiq and Police?

What are the problems/barriers?

International

- no adequate carbon trading system.

National

- deference to microgeneration-reluctance of energy-corps;
- removed transition incentives (e.g. Feed In Tariffs);
- poor planning (e.g. housing).

NUTS3

- needs leadership for local to overcome national level barriers.

What solution(s) might DCC offer?

Establish a Transition Technology Committee. ToR to:

A. Maintain a review of appropriate technology developments;

B. Seek opportunities for interventions to catalyse appropriate developments at minimal cost, e.g.:

➤ team with Qinetiq/police/Winfrith etc for green H₂ for transport;

➤ to encourage settlement-scale H₂ grid-inject and farm-stead-scale solarPV / **small** wind turbine;

➤ to emulate Norwich (Stirling prize) carbon-neutral housing;

C. Investigate incentives and practicalities for:

Distribution companies to reward all citizens for local generation;

'War-chest' to provide mortgages for fitting solarPV; also:

Could development gain (CIL) subsidise gas/smart grids to new housing? Could gas storage at Portland handle H₂?

D. For legal aspects, get pressure on energy-corps via MHCLG.

Thank you for listening!

www.naturaliance.org



SUME: Sustainable Use and Management of Ecosystems



DCC Executive Advisory Panel on Climate Change, 21 February 2020.