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PAMPHLET 7

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MAPPING our green ANARCHIST future

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PAMPHLET 1

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JURA BOOKS
110 Crystal Street
Petersham, NSW 2049, Australia
http://www.zeta.org.au/~anarchie/jura/home
jura@chaos.apana.org.au (non-commercial enquiries only)

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I. The Green-Anarchist Vision

For centuries philosophers, dreamers and visionaries have attempted to discover what should be the basis of human social, economic and political life? Some answer; "the Church or the military". Others suggest: "the secular-nation-state with representative government". In all cases the answer is based upon a purely human viewpoint and fail to consider the natural bio-geography of the Earth. Such viewpoints unqestioningly reflect the hierarchical, authoritarian and top-down culture of the present day, which have little in common with the web like interelatedness of natural eco-systems. Straight-lines, divide the land, artificially, into provinces and states. Deserts are sliced in half. Rivers are used to divide rather than unite. Society and nature is ordered from above by god and/or the state. Our lives are dictated by the irrationality of religious leaders, scheming generals and lying politicians. In place of the political state we proclaim the desirability of bio-regionally integrated community, determined by the differing regional ecologies of the Earth and the people that inhabit them. Each human community must reinhabit and reintegrate itself with the ecology of the natural region in which it is located. Each community must develop economic, social and political forms of regional and communal self-government.

Bio-regionalism is derived from the Greek word *bios* which stood for 'way of life' (as in *biology*) and from the Latin *regere* meaning 'territory to be ruled'. The meaning of the modern word bio regionalism is not very different from the original Latin and Greek understanding of these terms It is only in recent years that these ancient concepts have been placed along side each other. In so doing, humanity has developed a new way of seeing the world built upon the foundations of our ancestors. Rather than nature being ruled by the interests of state-capitalist-imperialism, bio-regionalism argues that the biological and ecological requirements of the life-territory or region should rule over that of human cultural desires and concerns. Human life-ways must be made to work with the 'way of life' (*bios*), that is, all the animals, trees and plants that are native to the region. This is not an abstract principle or theory. It is a fundamental truth of animal and plant ecology of the Earth. Bio-regionalism carves reality up at the joints. It states plainly that the Earth is divided into natural geographical patterns and regions and not nation-states. This is a fact of all of nature. Human society cannot ignore it.

The land is not uniform. Differences in drainage, physiography, climate and topography, create differences in the plants, animals and insects that inhabit them. These differences also dictate the way of life, both human and animal, that can be sustainably carried on there. Bioregionalism in practical terms implies

the elimination of the social and environmental problems associated with the anonymous mega-city and mass urban culture. Bioregionalism suggests a return to smaller and more rounded city-communes. Here the natural checks that human community makes upon the development of anti-social and anti-environmental behaviour can flourish.

People should stop thinking of themselves as Australians or Canadians. We must begin thinking of ourselves as inhabitants of a particular region. A region with specific plants, animals, winds, soils, water-sources, climates, eco-systems, harvest-times and life cycles. This is not utopian. It is absolutely necessary for the environmental well-being of all. People in every bio-region of the world could conceivably act in economic, political and social-cultural harmony to preserve the natural region in which they live. Every individual can lend a hand, developing lifeways aimed at achieving a state of equilibrium or climax with their region's ecology. If people are doing this in every region of the world, then the global environment will be more likely to withstand the backlash that the state-capitalist industrio-scientific mega-machine has wrought upon the more general life preserving functions of the Earth.

What would a bio-regional Australia look like? Certainly a very different one from the present 'national—Political' one (pictured at fig.1) whose boundaries have been artificially imposed upon the landscape. Indeed they were literally drawn across the map with a pen and ruler by colonial-bureaucrats in London. They bear absolutely no correlation to natural or bio-regional boundary or limit. The only exception being that between New South Wales and Victoria. Here the boundary is that of the mighty Murray River. However, the boundaries of state-capitalist imperialism serves to obscure and falsify our conception of our living continent. A river is not a boundary. A river and its banks are a whole thing. To say this bank belongs to NSW the other to Victoria is to deny the importance of the Murray Lands as a distinctive and important eco-region in its own right. The inhabitants of the Murray Lands must begin to see themselves as Murray Landers and not as Victorians or New South Welshmen. (The Yorta Yorta aboriginal people have maintained that bio-regional identity as Murray Landers despite the European colonisation and destruction of the River and environs.) This produces a very different map of Australia to that which the inhabitants of are now familiar.

Fortunately the Australian Government has already signed its own death warrant and done the work of figuring out the job for us. The National Mapping Program in 1967 identified a number of major drainage divisions. This conclusion was based largely upon the distribution of drainage patterns. Differences of climate, soil and flora, as well as cultural factors were also taken

into consideration. These major drainage divisions can be redivided into a number of bioregions. At a conference held in Adelaide in February 1994 attended by representatives of conservation departments from around the country an "Interim Biogeographic Regionalisation of Australia" was produced. This is depicted at fig. 3. The authors define bioregions as "areas of land and/or water whose limits are defined not by political boundries but by geographical distribution of biophysical attributes, ecological systems and human communities".

The Bio-region or the Eco-Region?

The large drainage divisions depicted at fig.2, each contain a number of bio-regions. They are often referred as *eco-regions*, by bioregionalists. Ecological regions demarcate the outer limits of regional ecology. More often than not, this is dependant upon the availability and patterns of water-supply and drainage. The reason for this is obvious. Without water there is no life. Water is therefore most important in determining the limits of the eco-region. A whole series of bio-regions, from desert springs to the ocean delta, are linked together by the great river and drainage patterns of the continent.

Should the bio-region or the larger eco-region be considered as the most manageable structure upon which to base our New Society? The answer is of course both. For example, there is a vast expanse of arid flat land that is known as the Nullarbor plain. This stretches from west of the South Australian Gulf to the western limits of the great Southern Ocean Bight. It is undoubtedly an eco-region in its own right. As very few people lives in the Nullarbor at all, it is lumped together in fig.2 with other regions as the 'Western desert region'. More generally, different bio-regions with widely varying eco-systems, pasture, forest, desert or marsh are all linked together by rivers. Rivers are the Earth's great natural arteries. These contours unite all the bio-regions along their path and divide the great drainage basins from one another.

Bio-regions and Ecotones

The state of Australia's great rivers, is not a happy one. The Murray-Darling basin is an ongoing catastrophe (re: chronic siltation, salination and the world largest ever blue-green algae infestation). The great river-red-gum regions of the Murray are ruthlessly drained to supply irrigation for agriculture in neighbouring bio-regions. This is seriously undermining their survival. The Australian Government has finally woken up to the fact that it is a distinct region (usually refered to as an ecotone) in its own right which urgently requires attention. Although we hope to see the end of national-state-government forever we applaud the suggestion to declare the banks of the Murray a nature park. It

Fig. 1 Imperialist Australia

Fig. II Eco-Regional Australia

AA: Australian Alps
AW: Avon Wheatbelt
BBN: Brigalow Belt North
BEN: Ben Lomond
BHC: Broken Hill Complex
BRT: Burt Plain
CA: Central Arnhem
CAR: Carnarvon
CH: Central Highlands
CHC: Channel Country
CK: Central Kimberley
CMC: Central Mackay Coast
COO: Coolgardie
CP: Cobar Panaplain
CR: Central Ranges
CYP: Cape York Peninsula
DAB: Daly Basin
DE: D'Entrecasteaux
DEU: Desert Uplands
DL: Dampierland
DRP: Darling Riverine Plains
EIU: Einasleigh Uplands
ESP: Esperance Plains
EYB: Eyre and Yorke Blocks
FIN: Finke
FOR: Flinders and Otary Ranges
FRE: Freycinet
FUR: Furneaux
GAS: Gascoyne
GAW: Gawler
GD: Gibson Desert
GFU: Gulf Fall and Uplands
GS: Geraldton Sandplains
GSD: Great Sandy Desert
GUC: Gulf Coastal
GUP: Gulf Plains
GVD: Great Victoria Desert
HAM: Hampton
JF: Jarrah Forest

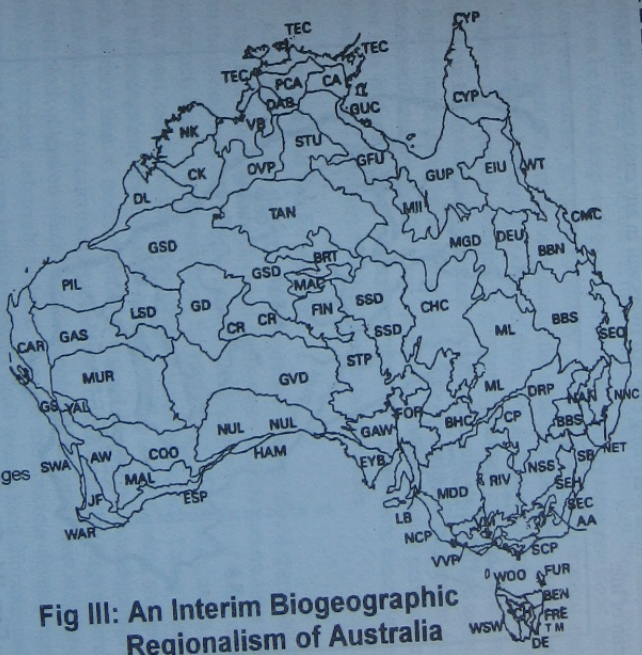

Fig III: An Interim Biogeographic Regionalism of Australia

LB: Lofty Block
LSD: Little Sandy Desert
MAC: MacDonnell Ranges
MAL: Mallee
MDD: Murray-Darling Depression
MGD: Mitchell Grass downs
MII: Mount Isa Inliar
ML: Mulga Lands
MUR: Murchison
NAN: Nandewar
NCP: Naracoote Coastal Plain
NET: New England Tableland
NK: Northern Kimberley
NNC: NSW North Coast
NSS: NSW South western Slopes
NUL: Nullabor
OVP: Ord-Victoria Plains
PCA: Pine Creek Arnhem
PIL: Pilbara
RIV: Riverina
SB: Sydney Basin
SCP: South East Coastal Plain
SEC: South East Corner
SEH: South Eastern Highlands
SEQ: South Eastern Queensland
SSD: Simpson-Strzelecki Dunefields
STP: Stony Plains
STU: Sturt Plateau
SWA: Swan Coastal plain
TAN: Tanami
TEC: Top End Coastal
TM: Tasmanian Midlands
VB: Victoria Bonaparte
VM: Victorian Midlands
VVP: Victorian Volcanic Plain
WAR: Warren
WOO: Woolnorth
WSW: West and South West
WT: Wet Tropical
YAL: Yalgoo

must be restored to the broad green line, it once was, through protection and reafforestation. The mapping of ecological and regional diversity is not subject to a hierarchy of order. They are not arranged like the ever-decreasing size of the dolls in. the Russian mother 'Babushka' toy . Nor are they set out like ice-cubes in a tray. The banks of the Murray River unite and define the eco-region. Although in some respects it constitutes a region with its own special needs, requirements, animals, trees, plants and insects it cannot be separated from eco-region in which it is located. The river is a central focus for bio-regional unification, but it is continuously fed silt, water, debris and nutrients from the hills, plains and plateaus through which it passes. Everything in the eco-region is dependant upon everything else. All rivers will in any case meet in the great ocean of life.

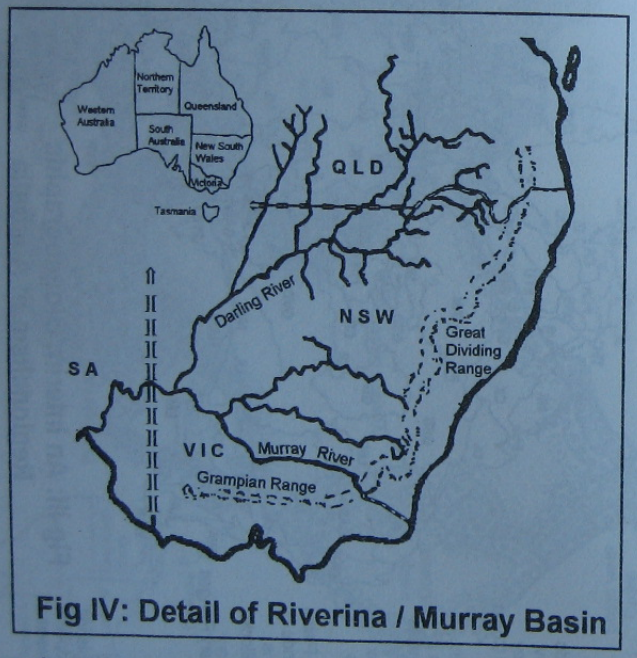

Fig IV: Detail of Riverina / Murray Basin

Bioregionalism & Science

Although bio-regionalism is closely allied with recognised scientific fields such as bio-geography, geology and both physical & social geography it does

not care for specialisation: the fixedness and exactitude that is characteristic of the scientific attitude. It accepts that regions cannot be separate or isolated from one another or otherwise crudely compartmentalised. Bio-regional boundaries are inter-mixed, vague and blurred. They interfinger with one another. They are always changing with the shifting sands or ebb and flow of the seasons and larger cyclical patterns. Beyond this, over millions of years a region, because of large scale climatic or geological events, can change from a forest to a desert. Bio-regionalist's do not see this as a problem but as a realistic statement of fact. The possessiveness, war and false patriotism engendered by a obsession with fixed political borders of the nation-state and its interior provinces is a problem of the past and not the future. An exquisite pocket of tropical rain-forest can be found deep with in an area of predominantly temperate forest due to some local niche, gorge or peculiarity. Areas of mixed semi-tropical and temperate forest can stretch for miles and the inhabitants of neither region can claim it as strictly belonging to either of them. For all that, extremely detailed information is frequently available in government departments and university libraries but has tended to be presented in national, state or departmental terms. It is hoped that this vast horde of scientific or bio-geographical information can be reassessed and practically acted upon from a bio regionalist perspective. When this is done we will undoubtedly come to a much more exact idea of regional limit and boundary than has hitherto been possible.

The Bioregion and the Ecosystem

All this talk of eco-regions, ecotones and bio-regions, should also not blind us to the fact that it is the individual eco-systems and life-communities that form the actual, real and tangible basis of life. Eco-systems can of course often be extremely local. It has been found, for example, that billabongs, only a few metres apart, can have completely different small animal life. This is because deep billabongs are never washed out even during severe flooding and spend much of their time as isolated bodies of water. Likewise the mound-springs of central southern Australia each have their own unique fauna. The large relatively unspoilt block of land on which I live (alongside the Parramatta river in Sydney's west) has become relatively isolated amongst the concrete developments surrounding it. Still, even in this extremely small space a local life community or eco-system has developed. The Tawny Frogmouth in the large old tree at the back competes with the Blue Heron from the bay for the abundance of little lizards, skinks and mice that run hither and thither. The frogmouth keeps my stores protected from the mice. My compost bins, not only provide nutritious humus for my vegetables, but also a hiding place for the large Blue-tongue lizards. These beautiful reptiles eat the slugs, that would, if left unchecked,

destroy them. Under more ideal circumstances we can define a life-community as a self-sufficient and self-regenerating assortment of different species that have adapted around and about one another according to the conditions of their local habitat.

Eco-logy comes from the Greek for home. The science of the home place and of the individual eco-systems is what ecology is all about. Life does not begin with the bio-region. Life begins at home. Here each and every one of us can take steps to ensure the health and vitality of our local eco-systems. There is of course no exact limit to the territorial size, or to the quantity of organisms in any given life community or eco-system. A highly acidic volcanic lake or river system may contain only small and especially adapted micro-organisms. Ecological scientists in the U.S.A. have estimated that in 1 acre of warm temperate forest there may be 600 000 ants; 350,000 spiders; 50 000 vertebrates; 100 000 earthworms; 20 000 snails, 90 000 000 mites etc., etc., along with several thousands of kilo's of plant matter divided into as many species. Whether we look at the organisms of an individual billabong or outwards to encompass the hydrological processes and cycles of a large river basin we can clearly discern the ever broadening contours of the Earth in which life must sustain itself.

A Suitable Size

Humans are large land-based mammals which have the ability to move and communicate swiftly between eco-systems and bio-regions. It is obvious that the individual eco-system or bioregion, although vital, is too small a unit upon which to found the Green Commonwealth. On the other hand, the present-day nation-states, and some larger ecological regions, are undoubtedly too large or too differentiated a conglomeration to encourage the sentiments of home-place vitality and community cohesiveness, so necessary to the preservation of social and environmental harmony.

Bioregional self Sufficiency?

The destruction of large-scale centralised state-capitalist power structures will end the 'endless growth' orientated national and global capitalist economic system. The inhabitants of each region will learn to produce more and more of their own food, energy and consumer goods locally. The potential of local rivers for micro-hydro-electric power and hill tops for windmill installations have been pitifully neglected. At last however many landowners in Northern Europe are considering allowing the establishment of electricity generating wind-farms on their properties. Some nomads now have mobile combined wind/solar generators in order to allow them to watch TV whilst maintaining their traditional life-style. Local plants, trees, minerals and clays will have to be

examined and re-examined to see if they can produce products which are useful to the community in a sustainable way. Through examining the local history of an area often reveals overlooked resources. The ultimate aim of the bio regional economy being to achieve a steady-state of equilibrium or climax with its ecology, whilst amply providing its human inhabitants with their food, energy and other material requirements.

Is total bio-regional self-sufficiency a practical, necessary or desirable basis upon which to build the Green Commonwealth? Our analysis has shown that individual bioregions are inter-dependant upon larger eco-regional features. On the other hand, nomadic peoples and hunter-gatherer societies, through constant seasonal movement, and intimate knowledge of local ecology and resources, have sustained a healthy, fulfilling and active life-style over many, many thousands of years, in some of the hottest or frozen bio-regions of our Earth. A rich and fertile flood plain can produce an abundance of food without taking anything from the soil. The soil of the plains is constantly being renewed by minerals and nutrients flowing down from the interior. Why shouldn't the surplus be given or exchanged with the people of a more arid and less-fertile region upstream?

Inter-regional export from a more fertile region to a less fertile one would help alleviate the human impact upon the resources of less well endowed regions. So we should not insist too strongly on total self-sufficiency of the bioregion. Moreover we may wish to set aside some bioregions as wilderness reserves (eco-regional parks if you like) for a wide variety of reasons. Allowing some regions to return to wilderness does not mean that they cease to be an economic resource. Many such regions, will for example produce an abundance of game. Others might be noted for its medicinal herbs, plants and berries. These can be carefully collected at harvest-time for the benefit of all those who are sick in their eco-region, and for anyone who needs their healing powers anywhere in the world. To transport these herbal extracts around the world with any degree of speed or certainty requires a global postal service, and with it, shipping and continental overland transport networks and associated support industries. The global village need not imply global pillage. A rail service can be run on a non-profit basis powered by local energy inputes along its way. Boats can be adapted to gain a substaintial amount of their energy from fixed sails. Local or regional members of the worker controlled rail or habour syndicates could operate such services for the benefit of all.

Large scale operations require large-scale energy inputs which involves methods of energy production that can be extremely damaging to the

environment. The development of inter communal transport and communications systems, using fast, efficient, low-energy and non-polluting technologies, that are worker-controlled, and operated for the benefit of all, is perhaps the great social-economic and political challenge for the next century. The workers of the transport and communication industries, must grasp the global capitalist megamachine and seek to unite humankind whilst proclaiming global solidarity, universal exchange and communication, without reference to region or boundary.

Think Global Act Local

With the natural world we should become inhabitants of our bio-region carefully preserving the stability and fecundity of our region. As citizens of the Earth, we should perhaps attempt to eliminate all barriers (excepting where this would cause environmental harm) to the open exchange and communication of people, goods and information throughout the world. The ecology of the whole planet is in many respects a closed integer like that of an individual eco-system. Bio-regionalist's cannot always stress regional issues over global ones. We cannot ignore the obvious need for global communication to solve many environmental and social issues of vital importance to the health and stability of the whole of Earth. In this way bio regionalism upholds its ideal of bioregional self-sufficiency without allowing itself to become doctrinaire in its approach to the global environmental crisis.

Energy is not however a limitless resource. It takes the whole of the summers fat for the migratory bird to reach its destination. Travel, communication and transport over long distances, what ever technology we might employ, takes large quantities of stored energy. We might take to using donkeys for transport locally. We might learn to make jumbo jets out of readily bio-degradable and non-polluting components, with engines that are fuelled on distilled maize. Nonetheless, it would still take many acres of maize to provide the fuel necessary to complete an interegional plane journey and many acres of carrots to feed the donkeys. This is why many products which are bulky, such as bread, are almost always produced and distributed locally. For these reasons, bio regionalism, although not wishing to dismiss global economic and social co-operation, nonetheless argues that whatever can be produced locally, in a bioregionally sustainable manner, *should* be produced at home, and not transported at great cost from somewhere else. *Produce and consume locally/ communicate globally* is the economic and social formula for both regional stability and global solidarity

Today we are enmeshed and entrapped in the global economy of the state-

capitalist mega-machine and even a partial realisation of region sustainability and self-sufficiency would be an amazing step towards our species successfully and harmoniously co-evolving with the rest of nature.

The attempt to adapt economic and industrial life to the resources of the region involves a flourishing of local and community inventiveness. When certain products are scarce, such as in times of war, substitutes have nearly always been found. A famous example from WWII, is when the U.S. government derived rubber from the guayule plant when supplies from overseas were threatened. We do not, however, have to ask the U.S. government for help in these matters! Indigenous cultures all around the world are showing us multifarious uses for whole classes of plants that have previously been ignored by the now doomed coal-steel-oil era of yesteryear. The exclusive dominance of a pitiful handful of "commercially useful" plant and animal products, which are produced extensively and mono culturally, for the world market, will and must cease. Instead, people in each region must learn to work in cooperation amongst themselves. We must exchange ideas with people all around the world to carefully examine the billions of local resources available to humanity.. Recycling programs being set up to carefully maintain stocks of regionally unobtainable materials, whilst attempting to find local substitutes, for products that still need to be imported from elsewhere.

We hope that the nation state will be be smothered by the broad leaves of the rapidly maturing bio-regionalist movement. The political dinosaur of the nation-state will become extinct. Bio-regional *self*-government will spread its great and mighty branches over all the other trees in the great orchard of political ideals. The sturdy saplings of bio-regional and community *self*-government will rejuvenate the forests which will cover the rusting jaw-bones of the state-capitalist bulldozer forever. We imagine that our children might play 'houses' in the rainforests from the mechanical debris of Earth Movers, just like the small mammals might have made nests in the skulls of dinosaurs littering the Earth at the very dawn of the Mammalian era. The only way we can save the Earth is if we: The Inhabitants, set about repairing and integrating ourselves with the natural ecology of the bio-region in which we live. This, I sincerely believe, is the only realistic basis upon which the bio-social development of our species, can indefinitely continue and flourish.

II. Mapping Our Anarchist Future

The transformation of rural Spain during the Revolution of 1936-9 is of great interest to those of us who wish to study the results of the Social-Anarchist vision when put into practice by the people:

"Prior to 1936, boundaries between villages, districts and provinces were drawn by the Madrid government to discourage regional autonomy. To protect landed interests and the cultural hegemony of Castile, the Madrid government placed a civil guard in every pueblo and neighbourhood, and tried to eliminate all expressions of regional autonomy and peasant communalism, fearing even the middle classes because of its support for regional autonomy. In August 1936, the autonomous government of Catalonia implemented a new set of territorial demarcations based on an earlier perception study by geographers which attempted to get a sense of the 'real' areas with which people identified. Similar territorial alterations were made in other anarchist regions to facilitate inter-communal exchange and to acknowledge the emotional attachments which peasants had to their local environments...The unique development of anarchist thought in Spain was due in part to social geography. The close identification of people with their local regions led anarchists to form decentralised federations of workers and to pose alternative non-authoritarian uses of space. Spanish anarchists posed the idea of a 'region' as the most fundamental cell in economic and social life. Composed of villages, districts, and provinces, each region was to embody cultural and ecological traditions. Spatial organisation performed a key role in disseminating anarchist ideas in Spain prior to the Civil War. This was apparent in the federal structure of syndicates and in the efforts of peasants to assert village autonomy. After collectivisation, assemblies met immediately to consider the question of land use. Since top priorities after the harvest were to diversify planting and to bring as much unproductive land under cultivation as possible, irrigation was required. Many collectives set out to build reservoirs, water conduits, bridges and wells in areas which had lacked water since the thirteenth century. A desire to increase self-sufficiency, decrease the seasonality of labour and maintain access to crops cut off by the war also led rural collectives to diversify production and cultivate formerly vacant land. Large numbers of animals were added to herds, and linkages were established between various activities — for example, fruit-growing, bee-keeping, and honey production. Reflecting an attachment to place, many collectives exhibited a concern for long-term conservation, rotating crops, planting trees to prevent soil erosion, and establishing laboratories to research new planting techniques and animal waste fertilization. The introduction of many small industries on collectives also required the construction of new barns, storage facilities, mills, and processing centres. Small scattered workshops were often consolidated and their functions integrated within a single new building or a converted church...Industries which utilised the waste products of other industries, such as soap and paper, were also expanded...The speed

and precision with which these activities were carried out suggests a special competence that has not often been attributed to the Spanish peasant. Events also confirm the fact that increasing self-sufficiency can be beneficial for regions in a state of revolution." (From: Myrna Margulies Breitbart, Anarchist Decentralism Rural Spain, 1936-1939: The Integration of Community Environment. Antipode: A Radical Journal of Geography, Vol. 10/11, 1979, pp. 83-98 passim.)

In recent years, map-makers everywhere in the world have been busy trying to make sense of a rapidly changing political landscape. The former Soviet Bloc has divided itself into numerous nation-states. They appear as fragile as the empire from which they have only recently gained their liberty. Russia itself, seems on the verge of dividing into scores of semi-autonomous regions intent upon wresting evermore political power from Moscow. The tribal war in the Balkans has caused acts of collective depravity which were thought "impossible in modern Europe". Small is not always beautiful and can if fact be extremely ugly. Even Belgium people, where the European Parliament is seated, are fond of saying "that our country is two or three nations rather than one". The nation-state unlike that of an organic nation is an artificial and increasingly unworkable political notion. Paradoxically, very few peoples in Western Europe can claim to have an unbroken or organic claim to the land upon which they live. The Freislanders of N. Eastern Holland whose marshy lands were never penetrated by Rome or any other hostile forces is perhaps one notable exception. The Lapps and the Basques of N. Scandinavia and N. Iberia are two examples of a people who have had their territory artificially divided by the nation state and who are actively fighting for their autonomy. Even the quiet and unassuming Freislanders have recently felt compelled to assert the right to have court hearing held in Friesian. Such examples within W. Europe are however really exceptional. The Britons may cling to a few ancient stone circles and an imported (Germanic) aristocracy in an effort to create a false feeling of national solidarity, but successive waves of invasion has rendered any claim to an organic-racial attachment to the land upon which they live completely nonsensical. The same sort of observations apply within N. Africa. Algeria for example, was originally inhabited by the Berbers and not by the Arabs who invaded long before the French ever did. The attempt to construct a European identity by means of an E.E.C. passport, currency etc., on the other hand, is a cynical attempt by government. and big business to destroy regional economies and keep all "non-Europeans" on the other side of the immigration wall of "fortress Europe". A kind of trans-national or euro-fascism against all non-Europeans being the logical accomplice of European Community (what community?) which allows for a tribal pact between the Serbs and the Croats for the destruction of the

Moslems whilst consistently denying Turkey entry into its elite club. In the Balkans individual rights are being subverted by a false notion of cultural rights. All of the parties are foreigners in their own land and none can claim an organic-racial connection. It is absurd, it is stupid, and yet it is happening!? In Australia the situation is slightly different. The Aboriginals are able to make a much more justifiable claim to a primordial or organic connection to the land. Humanoid fossils have however been found that are as old as 3 million years. The 40-50 000 years that the Aboriginals have inhabited the land is only 1 sixtieth of that period and represent a similar fraction of the total Aussie population—who by and large are recent immigrants and city-dwellers.

The word *denizen* denotes a person or a species that has become permanently established in a place but which is not native to that place. Peaceful migration, war, genocide & famine make the idea of a straightforward and uncompromised racial claim to the land nonsensical. The European, African & Australian (both Aboriginal & Immigrant) must accept that they are a denizen of the ecological region they inhabit and not cling to an outmoded and destructive cultural-racial identity. We cannot forget the culture in which we were brought-up. But we must learn to temper nationalistic fervour and objectively accept our destiny as a caring non-native inhabitant of the bio-region in which we live. Unless we can forget our tribal past and become true denizens of the Earth then nothing but senseless war and continuing conflict can result. Humanity must cease to divide the Earth into ethnographic parcels and learn to embrace the living regions that support all of us.

If an anarchist and environmentally harmonious society is to develop into something more than a vague utopian dream it will be necessary to begin to construct concrete and realisable visions about how we wish to change our use and perceptions of space and place. At present our conception of the World is globally divided into nation-states whose boundaries bear absolutely no resemblance to the large ecological regions (or more technically biogeoclimatic regions or biomes) of which it is naturally composed. At the local or bio-regional level the land is divided by industry and government into an absurd mishmash of overlapping administrative districts: county and state borders, legislative districts, telephone and postal-code areas, water control divisions, census and tax collection districts and hospital and health authorities. Moreover, these boundaries, over time, have been changed to suit the priorities of economic and political elites. A fact that further highlights the ridiculous way in which our home-places are divided up. These boundaries thoughtlessly separate people from the integrity of their surrounding/supporting natural environment and graphically depict the inherently inorganic nature of the governments that control them. There is an urgent need to provide people with better and more organic

pictures/maps of our home places. We can fantasise endlessly about the co-operative utopia of the future, but this requires coming to understand the natural features, limits and economic potential of the bio-region we inhabit. If maps of our home-place are imposed upon us by capital and state it *will* be *their* future and not *ours*.

Much of the information that we require is already collected by governments and industrialists upon an ad hoc basis. Aerial photographs of forests are taken by lumber companies for the purposes of exploitation. Data concerning river speeds and volumes are colleced by governments for the purposes of (usually inappropriate) flood control measures. Local weather stations, censuses and surveys of all kinds, likewise contain a wealth of information concerning the areas in which we live. Much of this information, is however, displayed or compiled in ways that suit the national statistics or the special interests of a particular body. A wide variety of region-specific information has to be unearthed from a diverse array of non-region-specific data. As anarchists and taxpayers we should put the wealth of information gathered by governments to better use by reorientating this knowledge to map the economic resources and natural patterning of the bio-regions we inhabit. We must begin to map for ourselves the distribution of local resources and how the water, plants & animals arranged themselves prior to the imposition of governmental authority. Bio-regional maps are a necessary aid for showing people the *real* nature of the area they inhabit and a vital tool for the actual transformation of society in revolution. A map provides a means of providing a practical understanding for transforming the vague notion of regional self-government into a workable agenda. Maps can be understood by illiterate people and appreciated by the smallest children. 99% of people are not concerned with political theory, but the same 99% can be convinced of the inherent soundness of the anarchist and bio-regional visions when confronted by a map of the natural area in which they live. Local or bio-regional maps, unlike political tracts, can be hung in schools and public places, and because they are local, everyone in the locality can learn much through having an immediate interest in viewing them. A local map to local people is not just a mass of symbols but an easily apprehended plan for environmental and social action. Government maps have been used to exploit the land and start wars and conflict. Local or bio-regional maps could be used to show people the way to create a socially and environmentally more harmonious world.

Although a few trips to the bush, university map libraries and government departments armed only with a pencil, tracing paper, notebook and gum-boots, is all that is necessary to compile an adequate map of one's area, the availability of satellite imagery and access to computer Geographic Information Systems (G.I.S.) can make the job many, many times easier and more effective. Radical

environmentalists, anarchists & bio-regionalist's in America and the U.K. have found that the use of purpose-made, complex and sophisticated mapping and analysis software when combined with local knowledge, can represent a formidable weapon for local empowerment. Once a system has been obtained by an organisation, geographic information can be accessed by local people by means of a modem. Computer databases/scale-maps of entire countries are now commercially available and all sorts of additional information can then be added by the user to compile the desired image. Satellite information regarding the whereabouts of isolated stands of climax forest, government information on rainfall or the location of toxic waste-dumps (ad infinitum) can be imputed into the database to produce a map that visualises the distribution or patterning of the particular feature with which one is concerned. Different maps showing the distribution of numerous natural and non-natural features can then be organised, layered & superimposed upon one another (like a series of clear-plastic sheets) to produce bio-regional maps of great quality, depicting a wide variety of information. Generally, the ability to produce powerful and professional looking maps, is everyday becoming easier.

Some G.I.S's come ready equipped with watershed identification software. This is important as the distribution and flow of water is usually regarded as the single most important natural feature that defines the extent and limit of a bio-region. Streams, tides, glaciers, lakes & rivers have carved out the majority of the landscape of the planet and the mapping of watershed areas naturally delineates bio-regional divisions. Once the initial & basic image of the bio-region has been isolated it can be used to depict any number of particular features. It is likely that any one map would be far too busy to be able to show all of the desirable information. For example, maps that show the original distribution of plant/animal communities, or aboriginal territories prior to urbanisation and industrial capitalism, are better displayed along side one that shows the region's present day characteristics. In most cases it will be necessary to have several dozen maps of the bio-region depicting various features that can be compared with one another. Unified or total-image representations of a bio-region, although necessary from a propagandist viewpoint, will have to be selective. Beyond this, the kinds of data that will need to be gathered, analysed and displayed will vary from place to place. After basic watershed and bio-regional limits have been outlined, most regions will necessarily have to make an inventory of the following:

- Physiographic—valleys, plateaus, mountain ranges, lowlands & plains
- Soils—in terms of their texture, permeability, erodibility, profile or series
- Indigenous life—the distribution of floral and faunal species of the area (including migratory habits and present & historical range)
- Human Population—present and historical numbers and distribution of the region's human inhabitants. Abandoned settlements often reveal resources that have been deemed unprofitable by big business
- Aboriginal Territories—the original borders of which often match bio-regional ones.
- Human Land Use—the way the region's resources have been used in the past and how they are used in the present day.
- Import & Export Analysis—both presently & historically to ascertain how far the region has moved from a self-sufficient state.
- Climate—Our concepts of climate are dominated by national radio and television weather reports. The collection and display of very detailed bio-regional climatic data is however of vital functional importance. Tremendous climatic diversity between extremely close locations is very common. For example very small changes in sunlight, elevation or vegetative cover can radically alter the possibility of frost at a given time of year. Detailed knowledge of local micro-climates must be gained if food is to be grown successfully and sustainably. Most regions have a large number of weather and river gauging stations which measure the rainfall, temperature wind-speed, solar activity, river-speed and flood levels and so. This information gives vital clues as to where solar, wind and micro-hydro-electric power facilities could be successfully placed and an indication of where certain agricultural activities are best undertaken.
- Bio-regional Economic Plan—Harvest values (historic & contemporary) for various key industries—logging, fishing, agriculture & mining—must be compiled and analysis undertaken to establish what kind of yield could be obtained from each in an environmentally non-destructive manner upon a sustainable basis.

III. The Commonwealth of All-Life

The idea that we should consider all the other animals as citizens of the region makes little sense. The concept of citizenry is a purely human centred one. It is relevant only to human politics. Perhaps, the concept of the great regional and planetary: '*commonwealth of all beings*', might be a better choice of words. It is sufficiently broad to convey the idea that: '*all life has a common right to the wealth of the Earth*'. In using the bio-region as the basis for our society, we automatically include all its animal and plant inhabitants. Bioregionalism, not only upholds the human commonwealth, but also, the greater commonwealth of all beings. This is not an extreme or unrealistic proposition. Most people now understand that the Earthworm is undoubtedly more vital to the well-

being of the Earth than that of our own species.

The realisation of the great commonwealth of all beings, will not be accomplished, without huge changes in our cultural attitude towards non-human life. In addition to altering our social, economic and industrial practices, we must also, join with all the animals of our region. We form the great regional family of life. No longer will all wild-life flee at the first sight of humanity. Rather, all the wild animals of our region should feel free to enjoy the great gift of life that the Earth has bestowed upon every being.

Our present culture has become alienated and detached from the living world around us. Nature is at best to be studied objectively, in an emotionally disinterested way, by the ecological scientist. We are enraptured by a television documentary on the fascinating habits of giant rain-forest-rats. We then set about mercilessly exterminating, rather than befriending, the rats in our own back yard. Enclosed in our little brick air-conditioned boxes we are not part of our natural region but apart from it. The garden birds no longer come down to our window sills to greet us in the dawn. At best, they snatch what they can from the honeyed grains the more 'enlightened' of us leave for them in winter. Even then, retreating to the highest branches and eyeing us warily at our most cautious advances. Our frogs no longer sit with us while we use our toilets as the household spray and the water-flush long ago exterminated the flies on which they fed. The butterfly no longer flutters down to kiss us in the summer. The fox has had to become more sly than the hunters who have persecuted it. If we are truly to achieve the bio-regional vision humanity we must reverse this trend. Befriend the animals of our homeplace and loudly proclaim the great commonwealth of all beings.

Historically the most eloquent exponent of this view was penned by the esteemed anarchist-geographer, Elisee Reclus (1830-1905). Reclus, who travelled extensively throughout the South American continent in his youth, examined in a short pamphlet in 1897 the radical differences in cultural attitudes and social practices exhibited towards animals by the natives and colonisers. I take the liberty of quoting at length from Reclus, whose literary genius is as great, as the shameful neglect, that the legacy of this great anarchist thinker has endured:

> No doubt it is true that in many respects man has progressed; his sensations having become more refined, his thoughts keener and more profound, and his humanity, embracing a vaster world that has prodigiously grown in breadth. But no progress can establish itself without a partial retrogression...and one may say with regret that, as a whole, mankind has certainly lost some of its early winnings. The world of animals, from which we derive our genesis and

> which was our tutor in the art of existence, which taught us fishing and the chase, and the rudiments of healing and of house construction, the habits of work in common, and the storing of food— this world has become a stranger to us. We today, in regard to the animals, talk of education or domestication simply in the sense of enslavement, but primitive man was thinking of a fraternal association. He saw in these living beings companions, and not servants; and indeed in many cases, as of common calamity, as in times of storm or flood, the beasts - dogs, birds, serpents - came and took refuge with him.
>
> The Indian women of the Brazil surrounds herself quite wittingly with a regular menagerie, and her cabin will have in the surrounding clearing tapirs, deer, opossums, and even tame jaguars. There one sees monkeys gambolling in the branches over the hut, peccaries rooting in the soil, — toucans, hoccos and parrots perching here or there on the swinging branches, protected by dogs and great trumpeter birds. And this whole republic moves and has its being without any necessity for a cross-grained mistress to deal out insults and blows.
>
> The Quinchuan shepherd, crossing the plateau of the Andes by the side of the llama and his burden, has never attempted to gain the assistance of the loved animal otherwise than by caresses and encouragement; a single act of violence, and the llama, his personal dignity offended, would lie down in wrath and refuse to rise. He walks at his own pace, never allows his burden to be too great, stand still a long time at sunrise to contemplate the ascending orb, expects to be crowned with flowers and ribbons, or to have a flag poised on his head, and desires the children and women, on his arrival at the huts, to flatter and caress him.
>
> Does not the horse of the Bedouin - come into the tent? and do not the weaning children sleep between his legs? The natural sympathy existing between all these creatures harmonised them in a broad atmosphere of peace and love. The bird would come and perch on the hand of man, as he does even today on the horns of the bull, and the squirrel would frolic within arm's reach of the field-worker or the shepherd...
>
> And we may say that in many respects the domestication of animals, as we practice it today, exhibits a veritable moral back-sliding, for, far from having improved them, we have deformed, degraded and corrupted them. We have, it is true, been able, by selection of specimens, to augment in the animal such and such quality of strength, of skill, of scent, of swiftness; but in our role of flesh-eaters our great preoccupation has been to augment certain four-footed masses of meat and fat- to provide ourselves with stores of walking flesh, moving with difficulty from dung-heap to the slaughter house...
>
> What a contrast there exists between the two kinds of civilisation I had occasion to see one day in a plantation in Brazil. Two bulls, bought at great expense in the Old World, were the pride of the proprietor. One of them, which

came from Jersey, was pulling at a chain which passes through his nostrils, bellowing, fuming, tearing the ground with his hoof, thrusting with his horns, and watching his keeper with a wicked eye; the other, a zebu, imported from India, followed us like a dog, with gentle eyes, begging for a caress. We poor ignorant "civilisees", living in our closed houses, afar from Nature, which alarms us because the sun is too hot or the wind too cold - we have entirely forgotten even the meaning of the festivals which we celebrate, and which, all of them - Christmas, Easter, Rogations, and All-Hallows - were originally festivals of Nature, though Christianity itself does not know it. Do we understand the meaning of the traditions which place the first man in a garden of beauty, where he walks in freedom with all the animals, and which tell us that the "Son of Man" was born on a bed of straw, between the ass and the ox, the two companions of the field-worker?

Nevertheless, though the gulf which separate man from his brethren the animals has widened...it seems clear that at least a certain progress has been effected, thanks to the more intimate association which has arisen with those domestic animals which are not used for food. No doubt even dogs have been partially corrupted. The majority of them, accustomed like soldiers to blows, have become degraded beings that tremble before the stick, and cringe and crawl under the threats of the master; others, who are taught savagery, become the bulldogs that seize poor folk by the calf of the leg, or leap at the throats of the slaves; and then again "greyhounds in petticoats" adopt all the vices of their mistresses - greediness, vanity, luxury, and insolence; while the dogs in China, bred for the table, are stupid beyond compare. But the dog that is truly loved, and brought up in generosity, gentleness and nobility of feeling - does he not quite often realise a human or superhuman ideal of devotion and moral greatness?

And cats - who have understood better than dogs how to safeguard their personal independence and originality of character, who are "companions rather than captives" - have they not, too, since the day of primitive wildness in the woods, made advances intellectual and moral which partake of the miraculous? There is not a human sentiment which on occasion they do not understand or share, not an idea which they do not divine, not a desire by what they forestall it...Every prison cell is soon transformed - provided the warders do not impose "good order" - into a school of lower animals, rats and mice, flies and fleas. The story of Pelisson's spider is well known. The prisoner had begun again to take interest in life, thanks to the little friend whose training he had undertaken; but a guardian of order appears on the scene, and avenging official morality with his boot, crushed the creature which had come to console the unfortunate man!

These facts prove to us the resources which man holds in command for the revival of his influence over all this animate world which now he leaves in the

lap of chance, and neglects to associate with his own life. When our civilisation, ferociously individualist as it is, and dividing the world into as many little hostile States as there are separate properties and different family households - when its last bankruptcy shall have been declared and recourse to mutual help shall have become necessary for the common salvation, when the search for friendship shall have taken the place of the search for wealth - that wealth which, sooner or later, will be sufficiently assured for all; and when the enthusiasm of naturalists shall have revealed to us all that there is of charming, of lovable, of human, and often of more than human, in the nature of the animals, then we shall remember all these species that have been left behind on the forward route, and shall endeavour to make of them, not servants or machines, but veritable companions. The study of primitive man has contributed in a singular degree to our understanding of the "law and order" man of our own day; the customs of animals will help us to penetrate deeper into the science of life, will enlarge both our knowledge of the world and our love. Let us long for the day when the doe of the forest shall come to meet us, to win our caresses by the look of her dark eyes, and the bird shall perch triumphantly on the shoulder of the loved woman, knowing himself beautiful, and demanding, he also, his part in the kiss of friendship! (from La Grande Famille, 1897).

Nonetheless, we should not blind ourselves to the very real conflicts that exist between ourselves and other species. We might now laugh at how a medieval moot sentenced a "field of caterpillars" to "death by fire" for having eaten the villager's peas. We can however, easily understand what prompted them to take such harsh revenge. Despite Reclus' rhetoric concerning the virtues of the domestic cat, all of us who love and enjoy the company of cats, cannot help, but be appalled by the perverse cruelty they exhibit towards the small creatures they prey upon. Even when they are not hungry, they mercilessly torture mice to death, for their own amusement. The beautiful little baby mice, no larger than my thumbnail that innocently frolicked in the living room were each tortured to death in turn. Their little dark eyes looking pleadingly up at me through the short grass as the cat with obvious glee bashed the petrified little creatures on the head whenever they dared to raise their tiny heads. Everyday we must rescue the beautiful skink that bathes in the sun on our doorstep from the claws of our murderous cat, who loves to bite their heads of and leave their bodies to decay on the kitchen floor. However delightful the mice might have been whilst they played on the tassels of our table cloth, last summer, before the cat arrived, their population reached plague proportions. Everyday we had dead mice in the oven and in the toaster, whilst everything was ruined by their droppings and ever more ingenious attempts to gnaw at our dwindling provisions. It was at about this time that the cat (a stray kitten) and the Tawny Frogmouth (an unusual looking Australian owl-like bird) turned up

in our house and garden. We were pleased when they arrived. We could no longer stand sharing our bedroom with so many scurrying little feet. Although we now have few mice or cockroaches we have plagues of flies. The cat has killed all the skinks and small lizards that used to come into our house to eat them. The dynamics of living nature, even at the level of our own back yard, is far from the idyllic and loving family of all creatures, which Reclus, so eloquently describes.

This fact is even more clear with regard to the cat as an introduced species in Australia. Descendants of the domestic cat in the outback are now found to weigh as much as 14 kilos. Millions of them are busily driving many of our smaller marsupials and ground-dwelling birds to extinction. The rangelands of Australia, from a cat's point of view, are not so different from the plains of Africa, and in another couple of hundred years or so might well reach the size of lions and come to threaten the larger wallabies and kangaroos as well. The cow, sheep, dog, goat, water buffalo, camel, fox, rabbit, and more recently, the cane toad collectively represent a terrible challenge to the diversity, richness and stability of Australia's native species and wildlife habitats.

Nature, despite all of its infinite potential for universal reciprocity, co-operation, and even love is seemingly fraught with cruelty, conflict, and even hate. The stability of nature, can, in large measure, be ascribed to the natural checks and balances that arise from the conflict that naturally occurs both within and between species. On the other hand, the role of co-operation, reciprocity and love is of equal value to the development and stability of nature. If we are to truly enter back into the natural dynamics of our living region, and sincerely declare the 'commonwealth of all beings', then we must begin to radically change our cultural attitudes, as Reclus so passionately asks us to. We must allow all animals, both large and small to enter back into our fields, houses and gardens.

Although most Australians have learnt the usefulness of allowing the large huntsman spider to take up residence in their home, the cockroach, which has never been actually been proved to be a real health risk to our species—is almost universaly hated, for its alien appearance, and creepy, scuttling motion. Perhaps we will never learn to tolerate the roach, but with regard to many insects, we must overcome our fear, blind prejudice, intolerance and hate. The name, habits and ecological function of every flying beetle that happen, by chance, to enter our house or garden, should be intimately known to every human inhabitant of our region. The small creatures must cease being lumped together as "bugs", to be unquestioningly exterminated by the aerosol of civilisation. They should be regarded as equal and vital members of the biological

community of our homeplace. For all that, Sydney's North Shore is famous for hosting the most venomous spider in the world (the Sydney Funnel Web). The termite (white-ant) rather than entering into our family, does rather, proceed to eat the family house. We cannot ignore the very real fights that we have with the creatures of our region. We should however, educate ourselves, to understand their habits, so that we might minimise the harmful consequences of our conflict with them. We must educate our children to be wary only of the spiders that will harm them, without instilling an irrational fear of all "creepy-crawlies". We must learn to build our houses in a way that makes them unappealing to termites, or at least easy to control them, without the use of toxic chemicals. Fishing people are learning not to use frozen bait which floats upon the sea surface and lures the mighty albatross to its doom. In Australia's Snowy Mountains they are now constructing tunnels under the roads to assist the migration of mountain possums from their hunting to their breeding grounds. Likewise, in England similar tunnels have been built to help toads and badgers safely cross the road. Just as we have learnt to build pedestrian underpasses for the aged, sick or handicapped within our own species, we must now apply the same principles to possums, badgers & toads as well! We must become more sensitive and introduce similar practices towards animals in all areas of human industry and concern.

We are familiar with the way working cats, dogs, donkies and horses can be assist us in our everyday life, as well as be our friends. The possibilities for human/animal co-operation, are however endless. In the days of the Australian whaling industry, pods of Killer Whales used to arrive at the whaling ports at the same time every year. They would round up other whale species and lead them to the harpoon. They would get the fins and tails etc., as a reward for their treachery. Likewise the Honey Minor Bird of Kenya communicates and guides humans, to bee's nests in the bush. The human-hunter after taking the honey from the nest, rewards the Honey Minor Bird with a large chunk of honey comb. Dogs have lived with Humans for many thousands of years. Their use as guides for the blind or for hunting are well known to us all. Recently however it has been discovered that some dogs are able to sense the onset of an epeleptic fit in their human companions. Especially trained dogs are being used so that epeleptics have the time to take the appropriate medication Here human and animal socio-cultural practices consciously come together to pursue a common aim.

Wherever it is practical, we must dissolve the cultural barriers that we have erected between ourselves and the wild-life of our region. We should wholeheartedly embrace them as active members of the greater commonwealth.

Unless we can achieve this, bioregional harmony will remain an abstract scientific possibility, rather than a fulfilling and enriching social and cultural reality. It is only through encouraging and engaging with the unique life-forms that surround us, that the rich life potential of the bio-regionalist vision shall be accomplished.

IV Landscaping For Wildlife

The effort to protect wild-life has tended to be focused on national parks & reserves. These have tended to be mountainous or marshy areas that were seen as unsuitable for economic development. Also many smaller reserves have become protected areas because they contain populations of rare and endangered species. Although much good and well intentioned work has been undertaken to care and maintain these island reserves many environmentalists are convinced that such efforts are doomed to failure. Modern conservationists now talk in terms of total eco-system management rather than focusing all of their efforts and attention of single-species management or upon existing reserves. A growing body of conservation biologists claim that the present system of small unconnected and unrepresentative parks and wildlife reserves, is failing, and will fail, to achieve the conservation goals for which they were created. The reasons for this are many and varied.

Size

Small reserves, especially if they are isolated from other reserves or are surrounded by land that has been significantly altered by grazing, agriculture or logging, stand little chance of surviving in the long term. Many animals, especially birds and large carnivores, such as bears or wolves, do not stay within the park boundries. Here they fall prey to the shot-gun and automobiles. Eco-systems which are naturally susceptable to immese fires cannot be preserved in small reserves. Many animals naturally exist in what conservation biologists call meta-populations. Animals may live in specific niches over the landscape, or may join or leave one group or form a new one. Without the transfer of genetic material small isolated populations may become sterile, as has occured with the Florida Panther. The small area of many reserves means that, in the event of a major event, such as a fire or reproductive bad-luck, whole populations, of a particular animal might be wiped out. Local extinction is commonplace in nature. Populations disappear only to recolonised by individuals from similar habitat close by. If the reserve cannot be repopulated, due to isolation from other populations, then the long term prospects for maintaining bio-diversity is bleak. Many animals need to be able to disperse and roam over vast tracts of suitable environment. Very large, generalist, highly mobile animals, such as

grizzly bears may need from 1-10million hectares of space, containing the maximum diversity of habitats in order to maintain a viable meta-population. A large enough population to counteract local extinctions and survive in the long term. Many migratory animals, such as Elk, and many bird species, require to be able to move, unapposed over vast distances as part of their normal life pattern. Fences may restrict elk from following their traditional migration paths. The draining of a marsh, many thousands of miles from a wildlife reserve can severely impact upon aquatic bird migration between winter and summer feeding sites. Clearly the system of isolated unconnected wild life reserves must be abandoned in favour of total eco-system management.

Edge Effects

Where surounding lands are very different from an island reserve the chance that it can preserve its integrity is very slim. In Europe and N. America the browsing of deer, whose numbers increase through logging, may inhibit the growth of native tree seedlings several kilometeres from the edge of the forest. Invasion of fast-growing non-native weed species from outside of the reserve are also a major factor. Indeed, many native plants which are vital to the health of the eco-system will only grow within the interior. For example, in the NW forests of America, the lichen, Lungwort—an important producer of nitrogen for the forest, grows only within interior, or non-edge forests. Feral animals, especially the cat, have caused immense damage to many Australian wildlife reserves. Where humans live close to reserves, cats, which are kept as pets, frequently escape into the bush. Animals which have adapted to surrounding human land usage practices can also represent a serious threat. An example of this is the American brown-headed cowbird. This bird lives in a symbiotic relationship with cattle by feeding upon insects that are on or encouraged by them. As grazing and clearcuts have proliferated, so has the cowbird, much to the detriment of songbird populations within surviving native forests and reserves. This bird has lost the ability to build its own nest. Instead it lays an egg in the nest of an unrelated and usually smaller birds. The cowbird nestling, larger and more voracious than the host chick, often larger than the host itself, starves its nest mates or shoves them from the nest to the ground. Many conservationists argue that smaller reserves should become "core areas" which should be gradually surrounded by buffer zones of native vegetation which are used by humans in ways that do not adverseley effect reserve ecosystems and wildlife.

Roads

The access to timber is generally achieved by roads. However the rise of the motor car and increasing demand for recreational and tourist uses of the countryside has exacerbated this problem. It is now generally understood that driving roads through wild unbroken forest permanently disrupts subsurface water flow and alters runoff patterns. Roads are the primary source of soil erosion and landslides. One study found that Hectare for hectare, roads can generate 100 times the sediment discharge of an undisturbed forest, while a clearcut increases soil erosion only seven times. Runnoff from logging roads is a major cause of river pollution and has led to a serious decline in fish runs. Roads also contribute to invasion of feral weed species, legal and illegal hunters, present a physical barrier as well as killing many migratory animals. Roads may dry out the soil many hundreds of metres into the forest from the roads edge. Discharge waters from road dreainage culverts are a major source of pollution and ersosion All over the world environmentalists are trying to stop the development of roads through wilderness for these reasons. Even temporary logging tracks, especially on steep slopes, can continue to cause a lot of damage long after reafforestation has stabilised the soil. Roads and tracks that are frequently used for reserve "management" often Compound edge effects, of even very large wilderness areas, through internally fragmenting them. 0.5 miles of road per sq. mile is now generally accepted as the maximum road density that can be tolerated by reserve eco-systems. Freeways, highways and even minor roads represent a significant obstacle to the movement, migration and dispersal of animals between reserves and the countryside generally. Many conservations now argue for the removal of roads through reserves and other areas of pristine wilderness.

Industry

Logging:

Industrial clear cut logging throughout the world is responsible for a similar set of problems, decreasing soil moisture, erosion, siltation of rivers, mass extinctions and global warming. Forests once covered a large percentage of the Earth. Because of the encroachment by the logging many extant natural forests exist now as fragmented patchworks of isolated stands. Lowland natural forest in many parts of the world has been virtually eliminated. This has led to an alarming decline in native animals dependant upon low elevation natural forestland. Old growth forest is never the same as second growth forrests. Studies of forest ecology in the NW forests of America has revealed that old-growth canopy is dominated by spiders and other predators, while second-growth forest

canopy is dominated by herbiverous aphids. Species dependent upon mature unbroken canopies and large fallen logs (which provide food and shelter for many, many animals and plants) are becoming increasingly rare. A regrowth forrest that has regrown after being logged out may look healthy but it rarely contains anywhere near the native biodiversity. Logging of old-growth forest, and especially the roads that come with it, has usually "opened-up" the land to grazing and agriculture, which compounds many of the problems associated with deforestation. Although some logging companies now leave a small number of the oldest trees, snags and fallen logs in place, this so called 'new forestry', still essentially implies young even-aged trees without a full and gradating canopy. This excludes many, many animals. Nowhere near the full variety of ecological niches are maintained. Selection logging, also known as selective cutting or uneven-age management, can be a far gentler cutting method than even the most radical new forestry approach, especially if road densities can be kept low. The intent is to remove a few trees at a time and allow natural regeneration in the gaps they leave, thus keeping the forest structure essentially intact. While under new forestry the goal is to speed recovery to maintain a functional forest landscape, in selection logging the goal is to maintain the forest ecosystem at the stand level. Removing high-risk, suppressed, and so-called over mature trees can maintain the stock and vigour of the residual trees. Many conservationists are however convinced that the logging of remaining old-growth forest should cease forthwith. Many paper products can be derived from much more suitable crops, such as hemp. Mixed plantations of fast-growing suitable native trees is infinitely preferabe to mass monocultural plantations of non-native trees. The use of large monocultural forest based on environmentally inappropriate is often touted by big-business and unwary conservationists as a way of "sustainably managing the forest industry". It is suggested that existing old-growth forest be protected whilst vast tracts deafforested land should be permanently altered in favour of narrow capitalist centered approaches to land use.

grazing:

Historically logging of forested land has been followed by grazing. Native grassland all over the world has been vastly altered in order to meet the needs of the grazing industry. In Australia the over-grazing of native grassland led to the establishment of non-native grasses. This has had a detrimental effect upon wild-life. In the vast American praries stirrup-high native bunchgrasses have been replaced by ankle high sod grasses. In neither the Australian rangelands or the American praries, would cattle survive without help from their human masters, especially with regard to water. Meagre vegetation, extremes of

temperature and stingy water supplies mean sheep and cattle could not survive in many places if left to their own devices. Because bovines require 4-8 gallons of water a day, cattle lumber down to drink from and congregate near lakes and streams—fouling the water, stripping vegetation and eroding sensitive banks. Deep narrow, clear, cool streams thus become shallow, wide, muddy and warm. This seriously affects aquatic life. Sheep contribute to erosion in a different way, resulting from the random paths take by sheep following another's lead. Salt blocks distributed at key sites to supplement cattle diets alter the pH, kill vegetation, and increase animal traffic. Cattle trample vegetation and consume more than all native browsers and grazers combined. The husbandry of mixed herds of suitable native herbivores and the reintroduction of native grasses and bushes could make grazing much more environmentally sensitive. Mixed herds are able to utilise a much greater variety of food sources. Native herbivores are necessarilly much better adapted to the environment. Many native grasses and food bushes are drought resistant and very nutritious. For example, in Australia, due to overgrazing in the early years of the colony native grasses were supplanted by imports. These imported grasses are far less drought tolerant than native ones. Experiments with the native mitchel grass has shown that the reintroduction of drought tolerant native grasses may be beneficial to the grazing industry. There is increasing popularity and interest in Kangaroo and Emu meat and thier byproducts. Many people are seriously thinking about the possiblity of farming them instead of unsuitable and ill-adapted introduced animals.

Other Industries:

Agriculture & some forms of aquaculture (such as shrimp farming off the Indian coast), Hyrdo-electric dams, oil prospecting, mining, and Tourism often have a dramatic effect on native wildlife. Large scale and evironmentally inappropriate mining and hydro-eclectric have become big issues in many parts of the world. The pollution of rivers from mining and the threat to aquatic life-cycles from dams are significant. The proper recycling of extracted raw materials and the development of local rather than massive centralised energy systems could eliminate many of the problems associated with these industries.

Representation of all landscape types

Agriculture has tended to favour the economic exploitation of lowland forest. Most national parks have tended to be high elevation sites. In Queensland for example one has to go to the far north before it is possible to find significant stands of lowland rainfores. Nearly all of the available lowland plains are given over to sugar cane. In the northern hemishpere many animals with the change

of the seasons like to travel back and forth between low and high elevation environments. Many large migratory animals require an unbroken passage from the high pastures of the mountains to the coast in order to take advantage of seasonal changes. Many large generalist carnivores, such as wolves and bear like to roam over vast expanses and prefer series of complete unfragmented "environmental gradients". The long term survival of many animals requires expances of wild-land which contain all landsscape types within an eco-region Moreover it is necessary that representatives of all landscape types are functionally connected with one another. The relationships between different eco-systems within the greater eco-system of the eco-region can be both surprising and complex. For example, North Ameircan Bald Eagles are particularly dependant upon patches of lowland ancient forest near rivers. These are used for communal night roosts, providing shelter and thermal advantages, as roost sites are often 8 degrees centigrade warmer than the surrounding Forest's. The rivers systems of the seattle-Everett megapolis and Vancouver BC support the largest wintering bald eagle populations in the contiguous united states. When I lived in Vancouver I was oustounded to see overwintering eagles on the tallest snags in Stanley Park from my downtown apartment which overlooked it. This very, very small area of low-land climax forrest-land park right next to the centre of Vancouver was preserved intact as it was used as a fort in the early years of the province. Other animals, which were specific to lowland full-canopy mature forrests of the coastal plains, such as the otter-like Fisher, now face extinction because so little of of this lanscape-type or (environmental gradient) now exists on the pacific North West Coast of America/Canada. In order to ensure the preservation of the life of our region it is necessary that all landscape types naturally contained in an eco-region are adequately represented and functionally contigous with one another. This has to involve rehabilitating those landscape-types which are unrepresented within present national parks and reserves.

Climate Change

The climate upon Earth is subject to change. Debate about the subject ranges from those who predict another ice-age to those who predict global warming because of the enhanced greenhouse effect. What is certain however is that in response to climatic change, whole eco-system have either disappeared or moved themselves to other locations. Plants and animals which have been extinct in one region for several million years may be alive and well in another region many thousands of miles away. However the expansion and contraction of eco-systems can be extraordinaryly rapid. Some 10,000 years ago, at the end of the last ice age, much of the Nothern hemisphere was covered with ice. The plants

and animals with which we are familiar today very rapidly populated the land left behind by the retreating glaciers. In terms of the long term survival of eco-systems and bio-diversity it is certain that it cannot be achieved by the national park and reserve system of the present day. Nature is not static and cannot be contained in one place. Poulations shift up and down mountains or a coast through time. In order to allow for the dispersal and movement of eco-systems we must abandon the notion of fixed, isolated and static island reserves, which attempt to deny the fluidity and movement of nature. In consequence many radical conservationists now favour the developemt of functionally interconnected reserves containing all landscape types upon a continent wide basis

Disturbance-Recovery cycles

Many eco-systems are periodically affected by large-scale natural events/ disturbances such as flood, fire and gales. Fire, as is well known to Australians, is absolutely vital to health of many ecosytems. Attempts to suppress fires in nature reserves and parks has had tragic consequences. In Australia, it is believed that the abnormal build up of combustible material has made fires far more intense than they might other wise have been. Also many animals and plants are dependent upon the disturbance-recovery cycle. For example, the last reproductively viable population of Lynx in the USA is threatened with extinction due to fire suppression in the reserve where they live. Periodic fires formerly created large tracts of temporary grazing land which attracted the snowhsoe hares, upon which the lynx depends for its food. The immense scale of bush fires is of serious concern as they can burn-out an entire reserve. Ironically one really big fire in the lynx reserve might well push them to extinction. Unless there are nearby and functionally connected reserves that have been unaffected by fire, from which a burnt-out reserve can be recolonised, then the normal disturbance-recovery cycle can be serverly disrupted. The attempt to suppress fires is again, an attempt to deny the fluidity and movement of nature. It is to act like King Knute commanding the waves not to rise. Many conservationists now advocate controled burn outs in reserves, but stress the inadequacy, in fire-dependent eco-systems of trying to preserve endangered species by means of isolated reserves.

Multiple-use Buffer Zones

It is now generally realised by many conservationists, that small, isolated, reserves and parks are not the long-term answer to the preservation of bio-diversity. Unless we rethink our approach to conservation we run the risk of being left with little more than a scattered patchwork of dysfunctional eco-

museums. It is necessary rather to cater for wildlife by means of a more integrated and interconnected regional and inter-regional approach. Edge effects, from agriculture, grazing, other industries and roads are the greatest threat to smaller reserves. For these reasons it is suggested that existing reserves be surrounded by multiple-use buffer zones. In these buffer zones roads would be reduced to a minimum. Attempts would be made to rehabilitate the land to something approximating its natural state. In the buffer zones human activities would be restricted to Low impact/intensity pursuits, such an selective logging, enriched land polyculture and evironmentally sensitive tourism. The mitigation of edge effects by the use of buffer zones and the removal of roads, would do much to improve the effectiveness of many existing reserves. The inteligent and imaginative use of natural products in these buffer zones could provide an income for the inhabitants of the zones. In a multiple use buffer zone it is not a matter of putting animals before humans, but of exploring sustainable land-use patterns that can enable both to flourish. With local bio-regional support the expansion of native reserves could be achieved gradually and painlessly

Conectivity passages of native habitat between reserves

A growing body of conservationists argue that "core" reserves should be connected to one another by means of wildlife conduits. These might be quite small, such as an underpass for badgers under a road. However, those who advocate this idea tend to talk in terms of linking reserves together upon a continent wide basis. This would sometimes involve connectivity conduits that are several miles in width running for several hundred miles. Although many would see this as a far less practical proposal than the buffering of existing reserves, if we are serious about preserving biodiverstiy, whe should at least examine the idea. Wildlife conectivity passages that follow rivers or protect traditional wildlife migration routes seem to make obvious sense. It would certainly be desirable, where practical, to re-connect lowland with highland, the coast with the inland, or the north with the south. in order to link representatives of all environmental gradients contigously. Where wild life corridors will contain resident populations of animals which we are seeking to protect they are likely to be much more successful. However many reserves are the result of some historical accident or foresight and are not ideally suited to being linked in any biologically meaningfull way. It has been estimated wildlife corridors that would allow, say grizzly bears or gray wolves to migrate from one national park to another one would have to be 25 kilometers wide, have 50% canopy cover, and contain very few roads. Some Bioregionalists and Conservationists have drawn up very ambitious plans for the linking and buffering of reserves. I have seen plans for linking the core reserves of Florida

and another for the linking of Yellowstone Park with other Parks and Reserves. Such plans are part of a larger vision that aims to surround all reserves with buffers and functionally interlink them upon a *continent* wide basis. To link reserves in this way would certainly be a major undertaking. It would be like making a whole new highway system for the critters as well. Surely it might be more practical for every one of us in every region to rehabilitate our homeplaces so that these animals are no longer threatened or made unwelcome. Americans, however, if they want to preserve viable meta-populations of the Wolf and the Bear, and ensure their survival, will certainly have to redesign the American dream to accomodate them. The same could be said of the Koala in Australia. If the idea was taken seriously, wildlife corridors would provide a permanent conduit for the long term dispersal of species from reserve souces. This may be necessary in order to counteract the effects of climate change. It is also the case that the system of isolated reserves which we have inherrited from the past will not ensure the preservation of biodiversity in the long term. A nationwide or continent-wide plan for the buffering of reserves and their functional interlinking, where practical, would provide a structure through which conservationists, ecologists and the general public could cooperate upon and interegional basis. Such schemes would however require an enormous amount of wide and general public support. The "tieing up" up of this much land, cannot be usefully achieved by it being imposed upon people by centralised and authoritarian governments, as some conservationists, claim. This would merely cause resentment at the local level, and nothing of any consequence can be achieved unless local people will it. This is because wildlife corridors would necessarilly pass through many regions and cause a great deal of upheaval to those currently occupying the land through which they are to pass.

V Conclusion

We have examined some of the leading arguments in modern and radical conservation biology and combined this knowledge with the insights and aspirations of social anarchism. The Green-Anarchist program that emerges from this synthesis presents us with a healthy and sustainable vision of global social and environmental harmony.

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New Anarchy Pamphlet Series

This booklet about the geographical mapping of a future social-environmental anarchy, is one of a number of related pamphlets concerning specific areas of anarchist theory and practice. By anarchism we understand a future society consisting of self-governing communities enmeshed in the ecological dynamics of the bio-region in which they are located. The idea is not to return to small and isolated villages. Rather, we wish that they federate from the bottom upwards upon a regional, inter-regional and intercontinental basis. Eventually this would form a global federation of bio-regions. Inter-regional trade and communication requires transport, telecommunications, postal and power industries. These vital services will be provided by worker controlled industrial unions operating on the basis of public needs and environmental enhancement rather than for profit. Service industries (childcare, laundry, etc) and small trades it is hoped would be organised along communal lines by the citizens of the commune or region. Other titles in the New Anarchy Pamphlet Series concern themselves with some of the specifics of creating such a society. The series includes discussions of *The Green City*, *Law & Authority*, *Agriculture*, *Money*, and *The Anarchist Revolution*.