

## Environmental psychology and environmental protection I

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### Main themes

- *The ecological self: A model of the self promoting a more caring attitude towards our surroundings*
- *Environmental problems are often behavioural problems*
- *The tragedy of the commons, social dilemmas, resource dilemmas: Psychological approach*

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## THE ECOLOGICAL SELF:

### A PSYCHOLOGICAL PERSPECTIVE ON ANTHROPOGENIC ENVIRONMENTAL CHANGE

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## Premises

- There is reason to believe that present environmental changes are greater than at any other known point in human history.
- Technological solutions are not likely to provide a sufficient basis for action within a short enough time span.
- If we reformulate solutions to environmental problems to be primarily a question of changing human perceptions, beliefs and behaviours, we may have a basis for action here and now.
- What we do with the environment, in part at least, is made possible by how we view the relations between humans and nature.

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## Model of the self in mainstream psychology

- A self with a strong sense of being something else than or apart from the surroundings
- The sense of a separate self: proof of having reached maturity in Western culture
- Harmful environmental change appears to be made possible by this view of the self:
  - A need for models of the human psyche promoting a more caring attitude towards our surroundings.
  - The core concept of this model is *the ecological self*, proposed by the Norwegian philosopher Arne Naess

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## Historical changes in views of the human-nature relation

- **Mythical age:** nature and humans experienced as one single unit
- **Antiquity:** two-sided view of nature - inner, actively creative vs. outer, passive
- **Medieval age:** the natural world as a principle counteracting the true and real world of ideas
- **After the Renaissance:** nature as an object of human domination and control, as dead matter, thing, object

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### Modes of environmental experience

- The environment experienced as *external, physical location*
- The environment experienced as *social system*
- The environment experienced as *emotional territory*
- The environment experienced as a *setting for action*
- The environment experienced as *self*

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### The environment as self: The ecological self

- Environments can be experienced as integrated parts of self-identity through a process of *identification*
- The self as broad, field-like or expansive - as *whatever the person identifies with*.
- Consequence: one will naturally (i.e., spontaneously) protect the natural (spontaneous) unfolding of this expansive self (i.e. the ecosphere, the cosmos)

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### Identification as a process of psychological development: A contribution from transpersonal psychology

- *Ken Wilber (1979)*: Psychological development as transcending and integrating lower order structures into higher, more comprehensive levels through identification, disidentification and integration
- The self gradually identifies with the higher order structure
- Wilbers final level of development: World process experienced similar to one's own existence. The most expansive state of the "ecological self"?

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### Some possible characteristics of the ecological self

- The ecological self can be defined as whatever the individual identifies with.
- Identification is understood as the experience of similarity and commonality (but not identity) with a unit.
- Expansion of the sense of self is seen as a process of development through identification, disidentification, transcendence and integration.
- Identification with specific physical environments constitutes a part of self-identity.
- Psychological bonds to specific environments are both emotional and cognitive in character, and can transcend the relation to one specific, circumscribed environment.

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### More characteristics of the ecological self

- Experiences resulting in identification with environments may be direct, or indirect (vicarious)
- Environmental sense of self may be related to specific value priorities and behavioral tendencies.
- Cognitions based upon direct or vicarious environmental experiences may develop into generalized environmental beliefs and representations.
- A threat towards an environment that is experienced as part of one's identity, may be perceived as a threat towards self and self-identity.

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### Characteristics of present environmental problems

- **Global dimensions**
- **Raises ethical questions**
- **Human activity is a major cause**
  - Behavioral and social scientists have an important role in determining and encouraging sustainable patterns of social life

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### We are facing a broad range of problems

- Need for a drastic change of the direction in which our societies are moving
- Technological knowledge and skills is not enough
- Knowledge about how to change or stop environmentally destructive behaviours is crucial:
  - Even when adequate technologies are available, certain behaviours must be maintained for these technologies to be effective

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### Why do we still await the needed behaviour change?

- Many of the problems develop only gradually
- Nearby environment is often perceived as less polluted than distant areas
- The tragedy of the commons (Hardin, 1968)
  - a limited, common resource (cf. fisheries) is used (up) by individuals acting in self-interest choosing short-term gain also when the long term consequences are serious

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### Behavior-relevant environmental problems

- Problems that may be crucial at a global level in the future (depletion of the ozone-layer, global warming...)
- Problems within the range of each individual: (ex: recycling)
- How easy/difficult it is to correct the problem

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**Environmental behaviours according to environmental impact and personal costs**

		PERSONAL COSTS (ACTUAL OR PERCEIVED)	
		Small	Large
ENVIRONMENTAL IMPACT	Large	Important. Easy to increase/decrease frequency	Important. Difficult to increase/decrease frequency
	Small	Less important. Easy to increase/decrease frequency	Less important. Difficult to increase/decrease frequency

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**Who should change behaviour?**

- Large segments of the population
- A few important decision makers because they determine the context of our everyday lives:
  - Politicians
  - technology researchers
  - designers
  - manufacturers
  - individuals within banking and lending inst.

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**Psycho-social environmental research can provide**

- **New knowledge (supplement to natural scientific knowledge)**
- **A better foundation for environmental policy**
- **Specifically: Identify determinants of environmental perceptions and behaviours**

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**Psychological perspective**

- **Focus on behaviours that affects environmental problems through each individual's behaviour**

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**Further perspectives on Human Behavior and Environmental Sustainability: Problems, Driving Forces, and Research Topics.**

See: Vlek & Steg (2007)

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**Main points**

- *Global trends: environmental quality and resource use*
- *Five broad driving forces of global environmental change: population, prosperity, technology, institutions, and culture; these forces are seen in the light of critical transformations during the evolution of human societies*
- *By means of a four phase model approach to resource dilemmas, a number of themes for research on and political support of sustainable development at different scales are described*
- *Discussion of multidisciplinary cooperation and desired developments within environmental psychology*

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### “Sustainable development”

- Since 1987: includes economic, social and environmental dimensions of our common future (WCED, 1987)
- Here: focus on environmental sustainability and relations to quality of life
- positive and negative qualities of living environments

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### Environmental sustainability as a social problem

- Environmental status
  - In general, the world has become more aware of the need for renewable energy resources
  - Still, we can observe a clear quantitative and qualitative reduction of environmental resources
  - A number of environmental problems are, basically, social and behavioural problems

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### The state of the environment

- Many of the problems are already solved:
  - Lead is removed from fuel
  - DDT is removed from pesticides
  - Asbestos is removed from building materials
  - Hazardous waste is treated more responsibly
  - There is a common understanding of the need for renewable energy

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### The state of the environment

- Much left to do
  - Population growth results in intensified material consumption and thus quantitative and qualitative deterioration of environmental resources
  - Reasons to worry
    - Fragmentation of the natural environment
    - Loss of biodiversity
    - Lack of freshwater
    - Overfishing
    - Global warming
    - Extreme weather
    - Urban air pollution,
    - Noise

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### The state of the environment

- Less industrialized regions: Poverty degrades both people and environment
  - Deforestation
  - Lack of drinking water
  - Floods in coastal areas
  - Serious air pollution in the cities
  - The wild animals of Africa will be extinguished outside of national parks

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### The state of the environment

- A large number of the problems are in a fundamental sense social and environmental problems
- *Millennium Ecosystem Assessment (MEA, 2005)*
  - During the last 50 years human activity has altered vital ecosystem services faster and more comprehensively than during any other comparable historical period
  - Effective measures to ensure sustainable resource management will demand considerable change in institutions and regulations, economic policies and incentives, social and behavioural factors, technology and knowledge

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**The evolution of environmental resource use**

- Steadily increasing population, consumption and technological strength are overshadowing environmental innovations
- Increasing consumption is particularly related to the increasing use of motorized vehicles for transportation of passengers and goods since WWII.
- Travelling is the primary cause of growth in carbon emissions in rich industrial countries: Life style changes driven by increasing income levels – particularly increased “automobility”

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**Driving forces of society behind environmental deterioration**

- Ehrlic & Holdren (1971): Total environmental resource use is a multiplicative function of population, consumption and technology:
  - $Impact = P \text{ (population)} \times A \text{ (average Affluence: consumption per person)} \times T \text{ (average resource intensity for Technology applied per production unit)}$
- Other important forces:
  - Institutions: the organisation of society supports these processes
  - Culture: general values, norms and beliefs

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**Driving forces of society behind environmental deterioration**

- Takács – Santa (2004): long term trends in the evolution of human societies
  - Clearing of more and more vegetation for building purposes
  - Increased separation of human societies and the natural environment
  - Development of technological efficiency and capacity
  - Intensified use of raw materials and fossile energy sources
  - Proliferation of transport infrastructure and vehicles
  - In addition: Mass motorisation and the computer revolution
- However: The total effect of human activities may be reduced via a consistent policy to change the driving forces described above

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### Driving force 1: Population

- Assumed to increase to 9 billion about 2050
- Population control is an obvious means to prevent increased poverty and reduce environmental problems
- Experts believe that higher living standard leads to reduced population growth – social psychological theory may contribute here

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### Driving force 2: Affluence

- In affluent countries increased consumption is due to a gradual transition from satisfaction of basic needs to satisfaction of endless temptations ("luxury fever"): household equipment, exotic travels, SUV's etc
- There is a need for considerable changes in consumer behaviour; production and distribution of goods and services and people's ability to fulfill their needs and values in a sustainable way through non-material measures of quality of life
- Most consumers are locked into social structures and processes resulting in environmentally harmful consumption patterns: Psychological changes are necessary

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### Driving force 3: Technology

- There is a great potential for more efficient materials, energy saving, waste reduction
- The benefit from environment-friendly technologies depends mainly on how they are used
  - The rebound-effect: the degree to which increased demand for a product is exceeding the increase in production efficiency per unit

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### Driving force 4: Institutions

- In industrialized countries the transition to a sustainable society depends upon major changes in fundamental beliefs about welfare, quality of life and related political goals
- We need an economy providing better quality of life independent of resource consumption

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### Driving force 5: Culture

- A prominent feature of human societies is environmental short-sightedness both in a physical and social sense
- Sustainable development requires:
  - A long term perspective
  - A more collectivistic culture
  - Environmental awareness and environmental responsibility
  - Understanding that humans are parts of nature
  - Understanding that non-human nature is of crucial economic and social importance
- Considerable psychological and sociological changes are necessary

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### Central themes in social and behavioral research

- Commons dilemmas
  - A social situation in which a collective risk or cost is generated via the combined negative externalities from many individuals acting independently
  - The external effects of many individually optimal ("rational") decisions may in combination lead to a suboptimal ("irrational") result that no-one really wants

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**Managing our common resources**  
A psychological perspective on commons dilemmas

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**Factors in individual use of natural resources including refined products**

- Rate: can normally be quantified
  - Ex.: water consumption
- Quality
  - Can water consumption be defended?
- Who manages ?
  - Society/macro level
  - Individual/micro level
    - Psychologically interesting: From microlevel upwards

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**Resource management at the micro level**

- Individuals monitor own consumption, observe effects, and are aware of the consumption of others
- Important: management at the micro level sums up to the macro level

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### Resource management and sustainability as a commons dilemma

- The commons are established on the assumption that the supply of this resource can meet the demands of the community
- Earlier one did not realise that the commons were limited, so unlimited exploitation was allowed
- "The invisible hand" would make sure that the entire society would benefit from free exploitation

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### Hardin (1968):The tragedy of the commons

<http://www.sciencemag.org/cgi/content/full/162/3859/1243>

- "Each man is locked into a system that compels him to increase his herd without limit – in a world that is limited. Ruin is the destination towards which all men rush, each pursuing his own best interest"
- The commons is any desirable resource held jointly by a group of individuals
- Although we know that natural resources are about to be depleted, exploitation of them is in fact increasing
- Hardin: The only solution is to put an end to the freedom of the commons and agree upon the introduction of mutual coercion, i.e. laws and regulations

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### Local management of the commons: Two success stories

- The mountain village Törbel, Switzerland
  - Successful common management of forest and pastures with regulations going back to 1483
- Lobster fisheries in Maine, USA
  - State government decided restrictions on size and sex of the lobster
  - Informal control: Fishermen were given specific territories

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### Community management

- Self - organised
- Resource users develop their own management rules, accept these rules voluntarily, and may alter them collectively
- The rules become shared social norms that people follow because they believe in them (internalisation)
- Little need for external control or coercion
- Transferability/generalisation: Limited to small scale conditions

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### Community management

- Group needs have priority over narrow self interest without depleting the resources and without coercion
- Independent of information and attitude campaigns
- Does not require deep religious or moral commitment

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### Self-interest and the public interest

- Commons dilemma
  - The choice between acting in self-interest and in the public interest.
  - Environmental psychologists: Under which conditions do individuals act in self-interest?

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### Commons dilemma

- Overuse of natural resources as a result of a conflict between individual and group interests
- When the natural resource is extracted faster than it's renewal

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### Social trap

- Temporal trap. Caused by the fact that individuals or societies give in to immediate rewards that has built-in and gradual costs becoming very large over time
  - Ex.: Smoking, the use of DDT

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### Social dilemma (Dawes)

- Includes the commons dilemma, social traps and the prisoner's dilemma
- Central features
  - Each participant profits more from acting in self-interest than in the public interest
  - Participants as a group benefit more if all act in the public interest than if they all choose to defect (act in self-interest)

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**Research strategies**

- Field experiments
  - Very difficult to control the resource and the situation
- Field studies
  - Lack of control: Difficult to know which explanation is the right one

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**Simulations as research strategy**

- Defection versus cooperation - 3 alternative situations that can be studied in simulations
  1. If one participant acts in self-interest (defects) while all others act in the public interest (cooperate) the defector will have the highest payoff
  2. If everyone cooperates, everyone will receive a higher payoff than if everyone defects
  3. If everyone defects the commons will be destroyed

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**Simulations :Are they realistic?**

- Not enough knowledge
- Some observations indicate reasonable validity

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### What influences sustainability-related behaviour such as resource management?

- Four categories of influences
  - The resource: Is it important, almost depleted or relatively plentiful?
  - The participants as individuals: Age, experience, value orientation etc
  - The participants as group members: Number, mutual trust, do they know each other?
  - The structure of the dilemma: Relative payoff for cooperation versus self-interest, is it possible to communicate, are choices made public, are they informed about the nature of social dilemmas, are there leaders or not...

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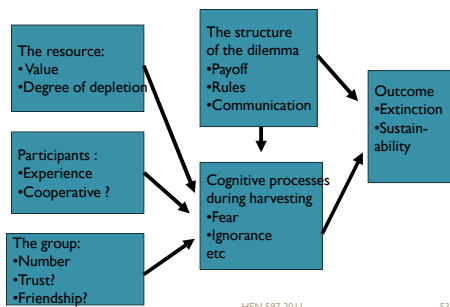
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### The natural resource management process



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### Simulations of resource dilemmas

Some general findings (see for example Gifford (2007), or Gardner & Stern (2003))

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### The resource

- Must be desirable, not depleted
- Size of resource
  - Uncertainty about size influences harvesting
- Cooperation decreases with importance of resource
  - When the resource becomes very important (fresh air during a cinema fire)
  - Not when payoff for cooperation/punishment for defection is large
  - Cooperation increases in half-polluted commons
- How fast the resource is depleted
  - Slow depletion leads to increased exploitation
  - With little trust, harvesting was about the same regardless of how fast the resource disappeared, with more trust harvesting was higher at slow depletion
- Plentiful resource
  - Harvesting more

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### Participants : Individual characteristics

- Age
  - Up to age 16 there is an increased comprehension of the value of cooperation, after this cooperation depends upon other factors
- Gender
  - Not clear results, although women probably are raised to cooperate more
- Personality
  - Tre types: Those who always cooperate, those who always refuse to cooperate and those between the two extremes
  - 1/nth personality – the tendency to cooperate or choose strategies for the common good
    - High 1/nth personality females cooperated more

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### Participants : Individual characteristics

- Social values
  - Cooperativeness ("maximize mine and your profit")
    - Moderat harvesting from the resource
  - Competitiveness ("maximize my profit **relative to** yours")
  - Individualism ("I maximize my profit and does not care about yours")
  - Altruism ("maximize your profit **relative to** mine")
  - Murder-suicide ("minimize mine and your profit")

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**Participants : Individual characteristics**

- Experience and knowledge
  - Better understanding of commons dilemma results in more cooperation
  - Earlier experience with one-person resource management had a larger effect than group experiences

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**Participants: Group characteristics**

- Conformity
  - Doing as the others : playing safe
  - Anti-conformist behaviour: may lead to resource protection: When one person took a loss others conserved more
- The number of harvesters
  - Self-interest increases with group size, because
    - The harm from single defectors is diluted
    - Defection becomes less visible
    - The effect of the harm done is less visible to the defector
    - Negative feedback to the defector is difficult to sustain in a large group
- Friendship
  - Friends know each other's needs, they share experiences of giving and taking, they wish to continue their friendship – so they cooperate!

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**Participants: Group characteristics**

- Trust: Generally a weak effect, but works through other factors
  - Trust leads to more cooperation only in small groups and when knowing how much others cooperate
- Sense of community
  - Easily created
- Equality and reputation
  - Conformity – "if others do it, I will, too"
  - Reputation as a cooperator may get others to cooperate

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**The structure of the dilemma**

- Reward and punishment
  - Cooperation increases with higher economic payoff or with punishment for defection
  - The complexity of the dilemma may lead to egoistic behaviour – one gives up trying to understand the rules!

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**The structure of the dilemma**

- Communication: Leads usually to better management and serves a number of functions
  - Clarifying payoffs
  - Reaching agreement on harvesting
  - Reduces distrust
  - Promotes group identity
  - Promotes public commitment to cooperation
  - Penalties for not following agreements
  - Promotes promises to cooperate

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**The structure of the dilemma**

- Public disclosure
  - Knowing what others do increases cooperation and trust
- Resource partitioning
  - Eks.: Groups get responsibility for a certain territory
- Governance: structural solutions
  - Popular when the resource has been overused

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### The commons dilemma: Solutions?

- Dictatorship?
- Ecological Utopia governed by the principles of behavioural psychology?
- Laws that impose cooperation in the commons?
- A decentralised society based on friendship, trust and communication?

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### Recommendations (Gifford, 2007)

- The management of a part of the resource should be given to each participant
- Trust and friendship must be supported
- The total amount of participants should be kept at a low level
- Participants must be encouraged to communicate, make choices openly, and egoistic decisions should be punished

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### Theories of social dilemmas

- Biosocial theories:
  - Behavior in the commons is mainly a function of genetics
  - Competition or egoism dominate human behaviour

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### Biosocial theory 1:

- Animals manage the commons by establishing territories
- Resources are protected by spatial distribution of the animals and by limiting new populations

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### Biosocial theory 2:

- In humans, the competition about territories is reaching more aggressive levels and manifests as violence, fraud and deceit
- The controversial part is that the theory explains this as resulting from our genes
- Territories are the basis for social hierarchies, in turn controlling the distribution of resources
- Inequality is seen as a natural basis for society

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### Biosocial theory 3:

- The selfish gene (Dawkins): Help occurs only when a gene may ensure its own survival

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**Social trap – and reinforcement theories**

- Social trap
  - Too many reward themselves too immediately
  - The reinforcement structure of social dilemmas must be rearranged: This has already been done in the management of hunting and fishing
  - A primary cause of insufficient management of the commons is that the rewards for acting in the public interest not only are smaller than the rewards for egoistic actions but they are also not contingent upon this behaviour
  - Solution 1: Let the government control the resources
    - Problem 1: Who will control the controllers?
    - Problem 2: If the government makes unpopular decisions in order to protect the environment it will lose the next election
  - Solution 2: Give up freedom in favour of equality and justice

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**Limited processing theory (Dawes)**

- Individuals do not always act rational but deliberately in a nonrational way
- To types of nonrationality:
  - When people do not pay attention to their actions
  - When the structure of a dilemma is too complex to understand

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