

# Tradable visitation permits as a management tool for tourism in remote areas: an application to Antarctica

Bas Amelung, Environmental Systems Analysis group

Machiel Lamers, Environmental Policy group

Wageningen University, The Netherlands



WAGENINGEN UNIVERSITY  
WAGENINGEN UR

# An unusual region...

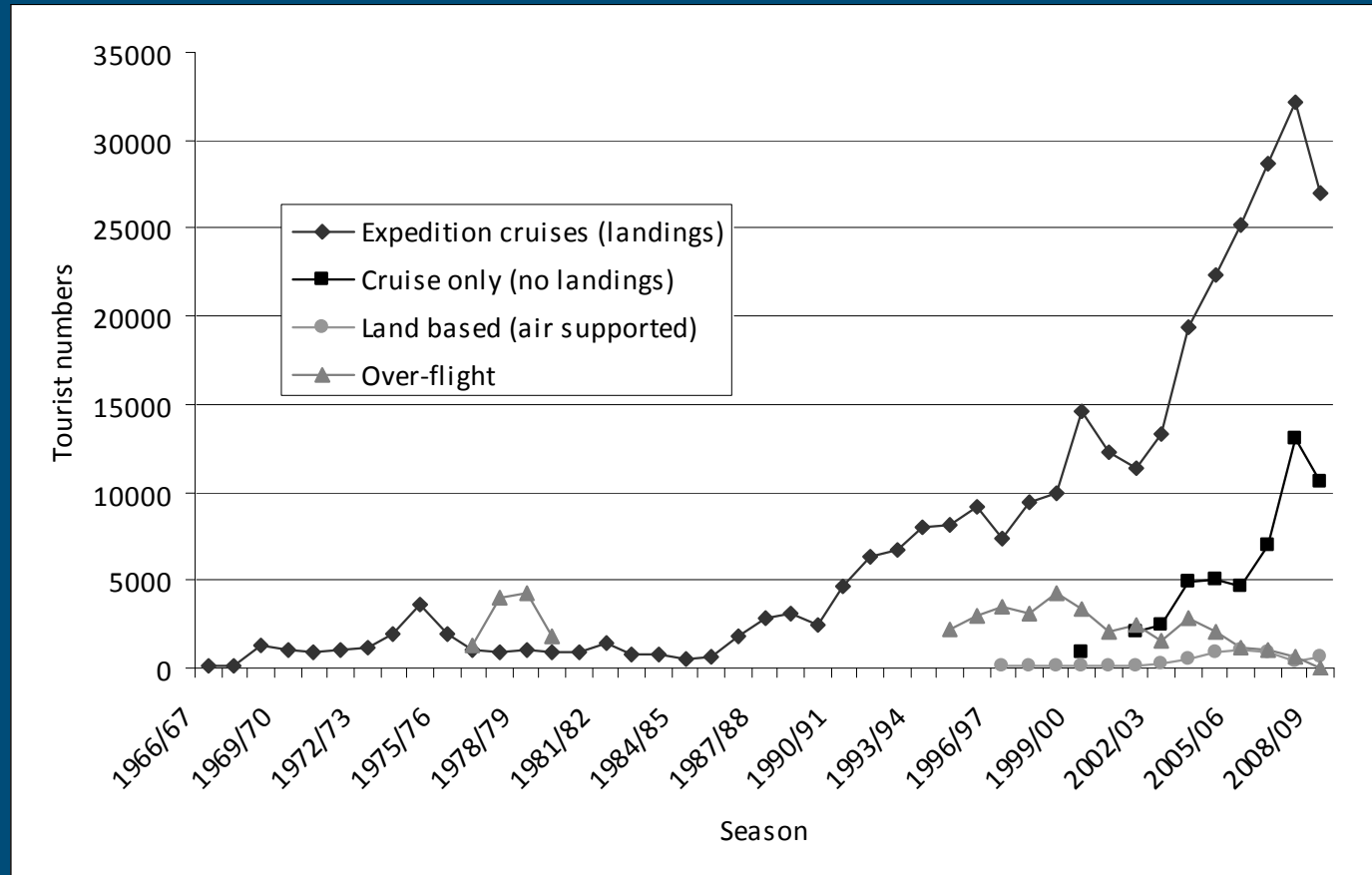




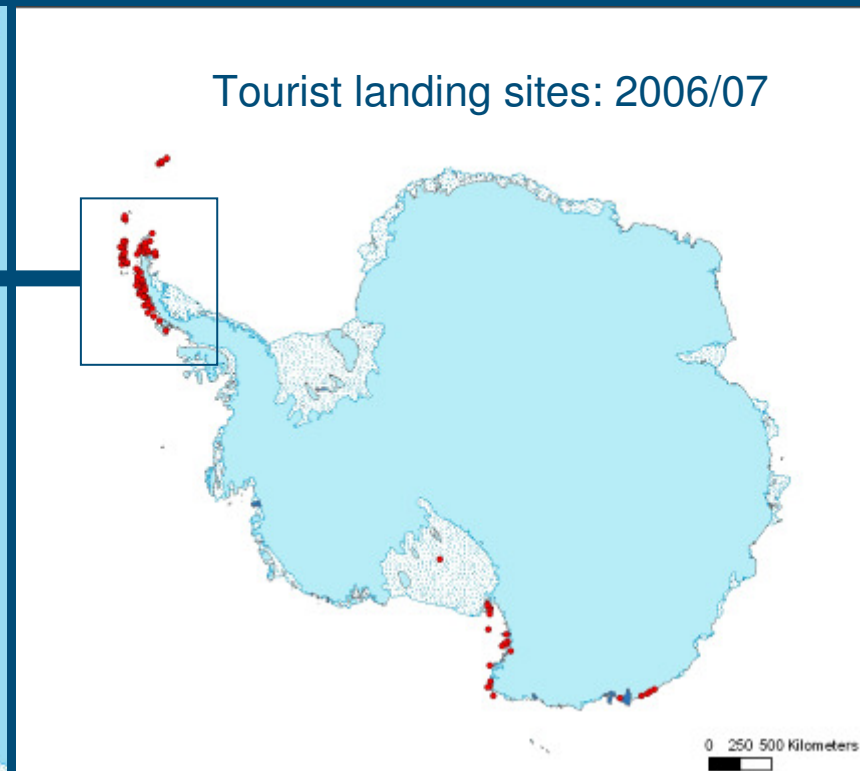
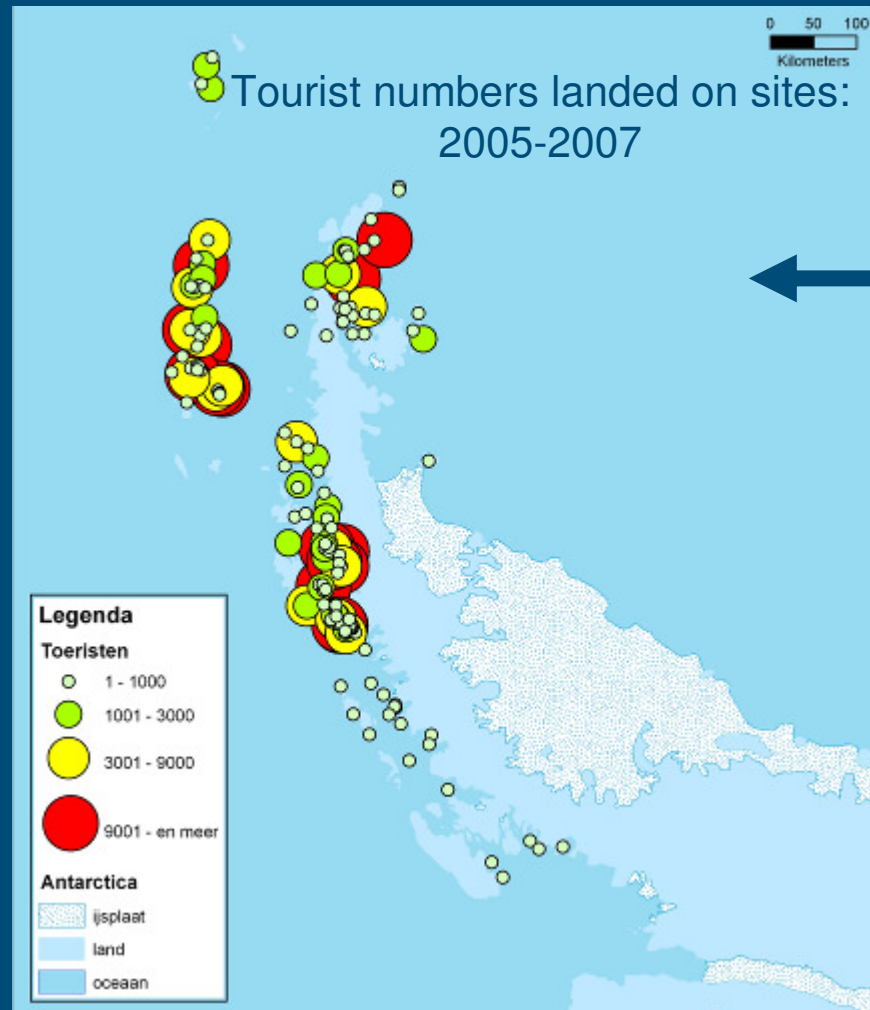
# A diversifying scope of activities



# Growing numbers



# Spatial and temporal concentration



# An unusual governance context



- 1959 Antarctic Treaty
- 1991 Protocol for Environmental Protection



# Relevant ecosystem services (TEEB study)

- "aesthetic: appreciation of natural scenery (other than through deliberate recreational activities)", including tranquility
- "recreational: opportunities for tourism and recreational activities", linked to e.g. landscape features and attractive wildlife
- "cultural heritage and identity: sense of place and belonging"



# Free services from the commons

- Antarctic ecosystem services are very valuable to tourists
- Tour operators capture part of the rent and make a profit
- Nothing in return





# Concern: ecological limits

- Pollution
- Disturbance of animals, trampling of plants
- Potential cumulative impacts
- (CO<sub>2</sub> emissions)
- → very limited monitoring



# Concern: social & institutional limits

- Congestion
- Claims on search-and-rescue facilities
- Claims on research stations



Not “Drake-passage-proof”

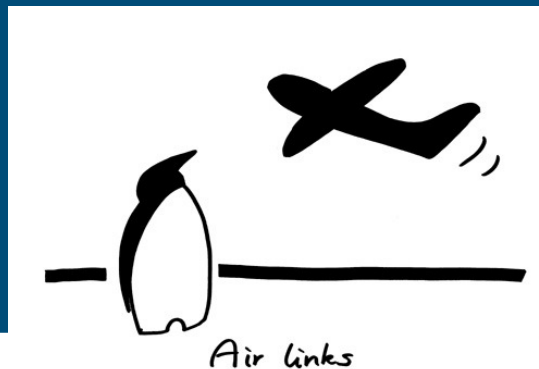


The operator’s alternative



# Concern: diversification

- Cruise-only: less commitment to Antarctica?
- Activities 'unfitting' in the Antarctic context
- Plans for land-based tourism?



# Hotel in Antarctica



\$1,000 per person per night



WAGENINGEN UNIVERSITY  
WAGENINGEN UR



# Governance

- International Association of Antarctica Tour Operators (IAATO)
- Self-regulation has been effective, but
  - Measures related to quality not scale
  - System of self-regulation may become weaker
- ATS should play a more prominent role?
- But: ATS is underfunded, understaffed



# The issue

- Unpaid ecosystem services
- Concerns about scale of tourism
- Lack of funding



# Solution

- Cap the total number of visitor days
- Allocate visitor permits to the ATS or an Antarctic Trust
- Auction the permits to the highest-bidding tour operator
- Use the revenues to manage and protect Antarctica as a global commons, and to monitor tourism impacts



Is it feasible?  
and how might it work?





# Property rights: who owns Antarctica

ATCP's?

No ownership in Antarctica

IAATO

Individual tour operators

**TABLE 1**  
**BUNDLE OF RIGHTS ASSOCIATED WITH POSITIONS**

	Owner	Proprietor	Claimant	Authorized User
Access and Withdrawal	X	X	X	X
Management	X	X	X	
Exclusion	X	X		
Alienation	X			



# Preconditions

- Absence of externalities
- Ability to monitor entry of visitors
- Capability to enforce compliance
- Sufficient information to set an acceptable cap
- Sufficiently knowledgeable permit holders



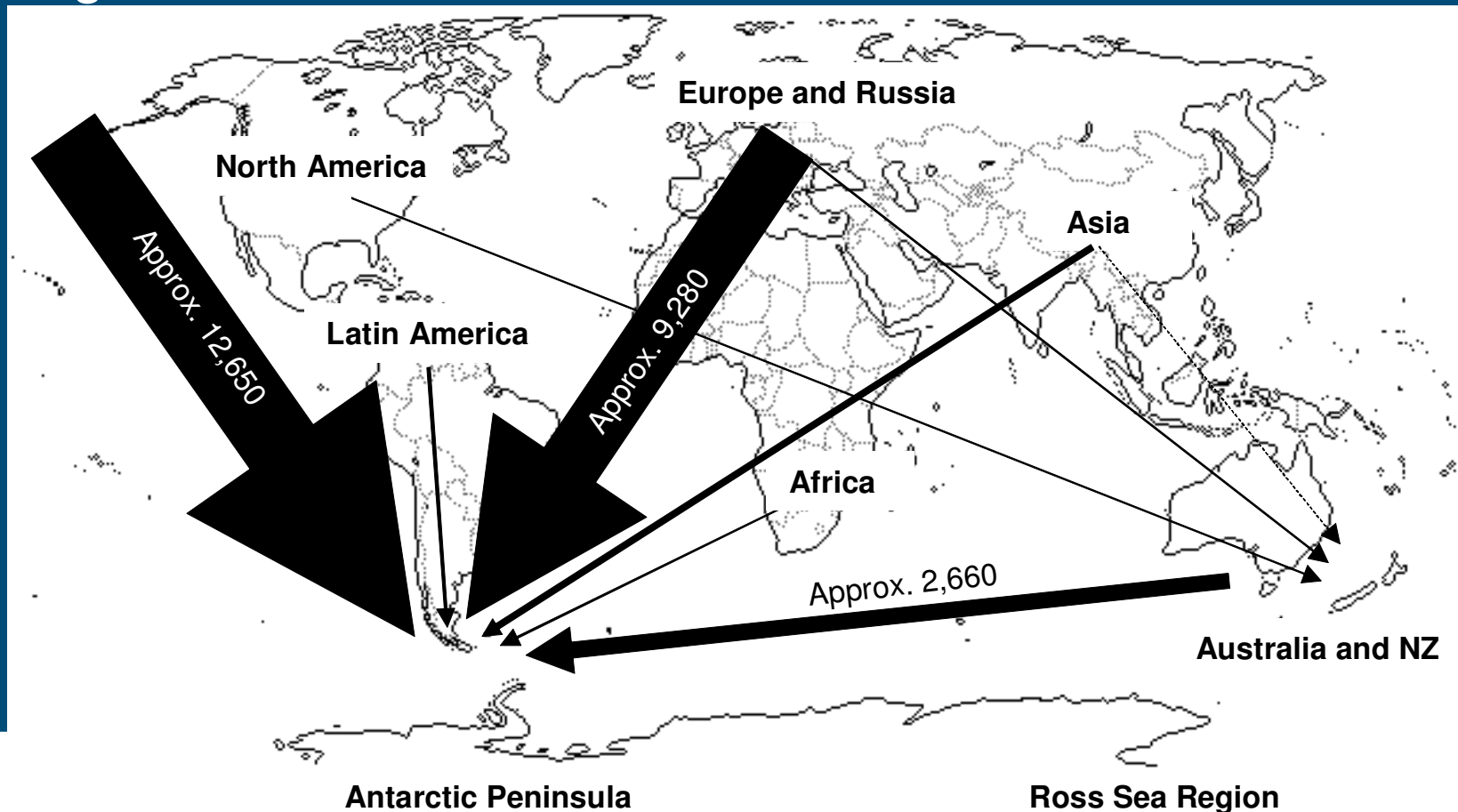
# Absence of externalities

- There are few (if any) substitutes for Antarctica
- Some tourists may go elsewhere; unlikely to be an important effect



# Ability to monitor entry of visitors

- More than 95% of tourists passes through Ushuaia, Argentina





# Ushuaia



WAGENINGEN UNIVERSITY

WAGENINGEN UR

# Capability to enforce compliance

- Enforcement can be paid from revenues
- Risk of getting caught is quite high
- Antarctic tourists tend to value appropriate environmental conduct highly
- The Antarctic community of tour operators is relatively small and well-organised; non-compliance can easily lead to expulsion from IAATO



# Sufficient information for an acceptable cap

- The impact of tourists varies widely
- 'Carrying capacity' is very difficult to quantify
- Pragmatic approach: setting the cap at or slightly higher than current visitation levels
- Adaptive management



# Sufficiently knowledgeable permit holders

- This rules out individual tourists as permit holders
- Trading amongst tour operators
- Trading system could be added to IAATO's scheduling system





# Design issues

- Setting the cap
- Initial distribution
- Auctioning
- Permit trading



# Setting the cap

- Bottom-up or top-down?
- Bottom-up: infer from caps for individual (congested) sites
- Top-down: overall cap for Antarctica (or Antarctic region: e.g. Peninsula and Ross Sea region)
- Pragmatic approach to setting the first cap; adaptive management later: e.g. annual revision



# Initial distribution

- Grandfathering: probably favoured by industry
- But not appropriate for commons nature of Antarctica (and it does not generate revenues)
- Give property rights to ATS or perhaps even better: an Antarctic Trust



# Auctioning

- Auction to highest bidder: e.g. annual event
- Avoid issues of market power by limiting share of permits in possession of individual tour operators
- Revenues to be used for monitoring, enforcement, and preservation
- (Dividend to all of the world's inhabitants is not feasible)



# Permit trading

- Permits should be tradable to add flexibility
- The trading system could be operated by IAATO to benefit from synergies and to strengthen IAATO's position
- A more neutral solution would be to leave the operation to a new "Antarctic Trust"
- Avoid issues of market power by limiting share of permits in possession of individual tour operators



# Discussion

- Little experience with cap-and-trade solutions in tourism
- Other instruments are much more common (e.g. entrance fees), but often insufficient to limit access and finance preservation
- Cap-and-trade could be useful for sufficiently unique and remote destinations, e.g. Galápagos, Svalbard, Uganda
- Moral issue: does cap-and-trade work against the poor?



# Conclusions

- Antarctica renders unpaid ecosystem services to tourism
- The growth and scale of tourism causes problems
- Funds for monitoring and preservation are insufficient
- A cap-and-trade approach can address all these issues, and seems feasible
- Worthy of further exploration

