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

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An unusual region…
A diversifying scope of activities
Growing numbers

Season:
- Expedition cruises (landings)
- Cruise only (no landings)
- Land based (air supported)
- Over-flight

Tourist numbers:
- 1966/67 to 2008/09

Data sources:
Spatial and temporal concentration

Tourist numbers landed on sites: 2005-2007

Tourist landing sites: 2006/07

Legend:
- 1 - 1,000
- 1,001 - 3,000
- 3,001 - 9,000
- 9,001 - en meer

Legenda:
- Toeristen
- Antarctica
- islet
- land
- ocean
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
- (CO₂ 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
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

<table>
<thead>
<tr>
<th>Owner</th>
<th>Proprietor</th>
<th>Claimant</th>
<th>Authorized User</th>
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<tbody>
<tr>
<td>Access and Withdrawal</td>
<td>X</td>
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<tr>
<td>Management</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Exclusion</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Alienation</td>
<td>X</td>
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</tbody>
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**No ownership in Antarctica**

**ATCP’s?**

**IAATO**

**Individual tour operators**

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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

Approximate numbers of tourists visiting Antarctica:
- North America: Approx. 12,650
- Latin America: Approx. 9,280
- Europe and Russia: Approx. 2,660
- Asia: Approx. 2,660
- Africa: Approx. 9,280
- Australia and NZ: Approx. 12,650
- Antarctic Peninsula: Approx. 2,660
- Ross Sea Region: Approx. 2,660
Ushuaia
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