My Perspective

• Chief, National Park Service (NPS) Applied Archaeology Center (15 years)
  – Oversaw archaeology and history research for NPS planning and design program

• Fulbright Scholar, 1993-1994 in Bangkok, developed CRM Guidelines for Southeast Asia

• Established Cultural Site Research and Management (CSRM) in 1999

• Established CSRM Foundation in 2010
My Background

• Planning for the management of cultural resources in Jordan, Ghana, Thailand, Ireland, Turkey, the United States

• Consultation in all regions of the world, some countries: Peru, Costa Rica, Guatemala, Japan, China, Indonesia, Singapore, Malaysia, Cambodia, Mariana Islands, Palau, Thailand, Ireland

• Co-President of the ICOMOS International Scientific Committee on Archaeological Heritage Management (ICAHM)
NPS Experience

• Natural and cultural resources are parts of the same system, but must be managed differently

• NPS provided model of the World Heritage system, but working with cultural differences is crucial

• NPS shifted emphasis to partnering 30 years ago, supporting and building capacity with community based groups

• Community and key stakeholder support is essential
Would Protected Areas Exist in the Absence of Tourism?

- The oldest system of protected areas, the US National Park Service, was established in part to promote tourism. The first national park was established by The US Congress only after energetic lobbying by the Chairman of the Union Pacific Board. The margin was one vote.
Economic Benefits

• Tourism is regularly listed as the largest or second largest industry in the world
  – This includes all travel, including business

Example: In Jordan, it is first or second in each year
Kakum National Park, Ghana

- National Park established in 1992
- A few years later, pressure to remove jungle forest structure, replace with monoculture (cocoa)
- Dense jungle, there are elephants, but difficult to see
- A rope walk constructed in 1995 provided an attraction an economic benefit.
Tourism Threats to Protected Areas

• Mass tourism not adequately managed threatens sites
  – Encroachment
    • Incompatible views, noise, smells
  – Direct damage by development
    • Roads, utilities, communication
  – Inappropriate activities
    • Destructive of resources and the visitor experience (use of off-the-road vehicles, collecting of cultural and natural items)
  – Market for illegal antiquities, fossils, etc.
Most Important Threat

- **Damage to Regional Systems**
  - Those resources that make a site worth visiting are **sustained by environmental and cultural systems**
  - The systems that sustain them can be destroyed or damaged
  - Systems deteriorate if not managed effectively
  - New systems can be introduced that are destructive
Abrasion

Although it has been well-established that seating tourists in the Theatre at Petra had already resulted in loss by abrasion of many ancient stonemason's marks, it is still permitted during special events while visitors wear slippers in historic houses, tourists carry pointed walking sticks in archaeological sites.
Special Events

Set-up and take-down of equipment for events, including seating, props, cameras, lights, sound systems, had produced serious damage to...
Fluctuations in humidity and temperature

Graphs representing the relationships between visitor numbers in Al-Khazneh and the changes in relative humidity.

The gray areas highlight the large spikes in chamber humidities that occur as a function of in-tomb tourist respiration, perspiration, and transpiration.
Looting

• When is a tourist no longer a tourist?

Attempted theft of central medallion in Biclinium 849, 2009 (Courtesy PNT and Courtauld)
Most Important Threat

- **Systemic damage** Development in the vicinity of a protected area produces environmental change. Heavy development can have devastating results.
Alteration of Hydrology

- Construction of impervious surfaces upslope form the Petra core has changed the dynamics of water flow at Petra.
Fields once buffered water flow

Seen in IKONOS Drape

IKONOS satellite image courtesy GeoEye
Flood Damage in Wadi Musa
November, 1999
Damage to Tombs

- Salt Wedging
- Undermining
- Case-Hardened Exteriors
Tourism and Preservation

- ICAHM launches a series of publications about destructive effects of poorly managed tourism
  - Petra
  - Machu Picchu
  - Angkor
  - Pompeii
Authenticity: What is it?

- Closely related to integrity: completeness
- Not false or imitation: real, actual
- Worthy of acceptance or belief as conforming to or based on fact
- Conforming to an original so as to reproduce essential features <an authentic reproduction of a prehistoric pot>? This must be made clear
- Made or done the same way as an original <authentic Mexican fare>
- True to one's own personality, spirit, or character

What is it worth? The desk of Charles Dickens, recently auctioned at Christie’s for £433,250

1870 engraving by Sir Luke Fildes
Authenticity: Natural Resources

• At what point does the introduction of activities and programs affect authenticity?
  – When native ecosystem is non-sustainable, threatening balance among species, elimination of some
  – When activities intrude upon the desired experiences and desired uses of areas within the protected area.

12,000 visitors per day, 40-50,000 per day on National Day
Authenticity, Cultural Resources

- Cultural Resources: Two general categories
  - Tangible
  - Intangible (perhaps better termed ephemeral)

The Pazyryk Carpet. Circa 400 BC. The State Hermitage Museum, Turkey
Tangible

- Monuments
- Groups of Buildings
- Archaeological Sites

Lübeck – the former capital and Queen City of the Hanseatic League – was founded in the 12th century and prospered until the 16th century as the major trading center for northern Europe.

Borobudur Temple Compounds, Indonesia, built in the 8th and 9th centuries AD

House of Taga, Tinian,
Intangible

- Oral traditions and expressions
- Performing arts
- Social practices, rituals and festive events
- Knowledge and practice about nature and the universe
- Traditional craftsmanship

Kabuki Theater (Japan)

Okihiki Festival, Nara, Japan, continuously observed for a millennium
Heritage

• Both natural and cultural sites can be heritage sites
• Often, they are explicitly recognized as mixed sites
• Always, they are mixed
• Yet, there are different standards and appropriate practices

USA
“Crown Jewels”
Grand Canyon
Yellowstone
Yosemite
International Guidelines

• For tangible culture
  • The Venice Charter for the Conservation and Restoration of Monuments and Sites (1964)
  • Charter for the Protection and Management of the Archaeological Heritage (1990)
  • The Nara Document on Authenticity (1994)
  • The ICOMOS Charter for the Interpretation and Presentation of Cultural Heritage Sites (2008)

• For intangible culture
  • UNESCO Identifying and Inventorying Intangible Culture (2011)
Managing Resources

• Basic steps:
  – **Inventory**: A survey of resources, be they archaeological sites, music, or social practices
  – **Evaluation**: Deciding what of the inventoried resources are most important
  – **Mitigation**: of damage/threats: Steps taken to avoid or minimize damage to authenticity and integrity; sometimes this involves documentation of resources before they are altered or destroyed.
Natural Resources: Conservation

- Sustainability is a term closely linked to conservation of natural resources
- Wise management depends upon inventory, evaluation, and monitoring
- Key is intervention before resource degradation becomes irreversible (LAC)
  - On San Clemente Island, inventory and evaluation of species, ecological evaluation, guided decision to remove feral goats, which were eliminating habitat for endangered species

Island Shrike
Island Fox
Feral goats

Recovery of shrike population
Natural Resources: Conservation

• Inventory of species populations
• Evaluation of species “importance”
  – Shrikes are endangered, goats are plentiful
  – Scientific, landscape scale studies to establish dynamic context
  – Interrelationships among species and habitats
• Management action
• Periodic monitoring
  – Indicators, instruments, standards (limits of acceptable change, or LAC)
Cultural Resources: Preservation

- Tangible culture
  - Scientific and historic value depends upon preservation of uncontaminated material in original context
  - Educational value depends upon a presentation of the site based on solid evidence (photos, drawings, written descriptions, archaeological evidence)

Research should be clearly described and results presented both in physical form and in other ways (Jomon Site, Japan)

Asante Traditional Buildings World Heritage Site, Ghana: “The present appearance of the buildings and their architectural form is largely authentic in terms of reflecting their traditional form and materials, although many have been largely reconstructed.”
Cultural Resources: Preservation

- Intangible culture
  - Intangible culture is fluid
  - Products (goods, services, experiences) are greatly influenced by the marketplace
  - Authenticity depends upon documentation

Story-telling workshop, SEAMEO-SPAFA, Bangkok

Weaving is a source of income for women, especially, in many countries

The product requires substantial investments in time, and sometimes materials

Marketing can also be problematic
Preservation of Tangible vs Intangible Resources

- Tangible resources are non-renewable.
- Intangible resources must be renewed.
  - Cultural practices and knowledge must be conveyed to succeeding generations

A seafarer tells the young Sir Walter Raleigh and his brother the story of what happened out at sea. Documentation replaces oral histories today.
Economics and Authenticity

- In simple microeconomic terms, authenticity is closely associated with “taste”
- What does the tourist want?
- This varies by demographic

Disneyland, Rose Garden: Families, children, mass, former more than latter

Williamsburg: Families, couples, older, more education and wealth

Great Wall, Petra, older, most education and wealth
Supply and Demand

- Price is the prime determinant of supply and demand for goods, services, and experiences.
- Price goes up, demand goes down, supply goes up.

Equilibrium price: $175
Factors that Influence Price Shift the Supply/Demand Structure

• Demand: $Q_d = f(P_x, P_y, I, T, E, B)$
  - Where $P_x$ is the price of the good in question, $P_y$ is the price of related goods, $I$ is income, $T$ is taste, $E$ is expectations, and $B$ is number of buyers

• Supply: $Q_s = f(P_x, R, T)$
  - Where $P_x$ is the price of the good in question, $R$ is inputs (materials and other resources) required for production of the good, and $T$ is the technology used in producing the good
Supply and Demand After Half-Price Airfare Sale

- Complementary goods are consumed in tandem with another good. When the price (Py) of a complementary good falls, demand for the related good increases (and vice-versa)

Equilibrium price: $225
Supply and Demand for Higher Income Groups

- Caveat
- Demand for inferior goods falls as income (I) rises.

Equilibrium price: $225
Authenticity is an Acquired Taste

- A taste developed by high-end consumers
- In terms of performance, knowledge creates a more useful sense of self
- It provides a more realistic view of the world, and there a better basis for making decisions
Authenticity on the Supply Side

- \( Q_s = f(P_x, R, T) \)
  - \( P_x \) = price of the good in question, \( R \) = materials and other resources required for production of the good, \( T \) = technology used in production
  - Materials and other resources (\( R \)) are limited, in act, attenuating, for authentic goods, services, and experiences. Technology (\( T \)) can be used to conserve or preserve the authentic, and can also be used to create “authentic reproductions”
  - Technology cannot keep up with the attenuation of the authentic, when the authentic is beyond question

Equilibrium price: $275

Supply decreases (moves left)
Tourism and Authenticity

• Providing an experience that conveys place in an authentic way depends upon determining and directing visitor flow
  • Orient visitors to the site
  • Direct visitor flow through zones for which desired uses and conditions have been established
  • Monitor the effects of visitor activities
    – Adjust management accordingly

• This requires zoning
  – Determining desired conditions and uses for each zone
**Desired Conditions and Uses**

- **What are desired conditions?**
  - Determined by
    - Sustainability
      - Requires scientific studies
    - Desired experiences
      - Requires survey instruments

National parks in China: Ma (2008) pointed out that because of over-exploitation, 20% of targeted protection areas have been destroyed, 11% of natural reserves have been severely degraded, and 44% of National Parks face massive waste problems, leaving 12% of water bodies contaminated.

Crowding can be perceived as unpleasant, unacceptable, or part of a desired experience. A visitor on National Day might desire an experience different from a visitor in the winter.

Long-term planning processes, such as a scientific inventory of natural resources, classification of protected areas, and the development of monitoring systems (Chen and Zhao 2004).
Desired Conditions for Petra Management Zones

City Centre
Clear explanation and depictions of ancient city-scape that do not depend upon destructive research or devices.

Theatre
Clear but non-intrusive interpretive devices that do not degrade resource.

Siq
Quite, natural smells and sounds, clear but non-intrusive interpretive media.

Basin
Clean restroom and dining facilities. Clear instructions as to options for returning to modern world.

Turkmaniyya
Traditional but comfortable modes of transport offered in non-aggressive fashion, interpretive devices to interpret features along Turkmaniyya, summery of experiences in park, and suggestions for additional ones (e.g., Ad-Dayr, High Place, Wadi Sabra, etc.).

Near Country Trail
Opportunities for more intimate experience with nature and culture, patrols to ensure that undesirable activities are not allowed.

Arrival
Order and cleanliness, clarity of message, effective presentation to visitor of options and the location of basic services. Inviting and engaging atmosphere, friendliness and hospitality. Opportunity to rest and renew before entering Siq.

Elbow Turn
Clean restrooms, opportunities for comfortable rest, opportunities to rehydrate, clear but non-intrusive interpretive devices, opportunity to acquire additional interpretive media.
Desired Uses for Petra Management Zones

**Turkmaniyya**
Return route to modern world, enhancement of experience by using traditional modes of transport, opportunities to acquire authentic handicrafts, viewing of additional tombs from perspective of mode of transport, overall perspective of ancient city as one gains elevation.

**City Centre**
Explanation of probable layout of Edomite, Nabataean, Roman, Byzantine, Crusader, and Bedouin occupation of the area.

**Theatre**
Establish connection with Greco-Roman city planning tradition, discussion of Nabataean stone-working mastery, discussion of role of Nabataeans in Greco-Roman world (e.g., four Roman emperors were of Arab decent).

**Siq**
Interpretation of natural forces that produced Siq, use of Siq in ceremonies, hydrological role of Siq, instilling a sense of expectant awe.

**Basin**
Review of experience, rest and renewal.

**Near Country Trail**
Specialized tours (e.g., High Place of Sacrifice, Um Al-Biyara, Crusader Castles) on well marked and patrolled paths.

**Arrival**
Basic visitor orientation, transition from modern to ancient world. Must provide list of possible experiences locations of essential amenities (restrooms, food, refreshments) map, and orientation film (7-17 minutes).

**Elbow Turn**
Rest areas, comfort stations, transition to central portion of ancient town and orientation of visitor to city center layout, role of Petra in trade, flow of water into city and into agricultural fields above city.
Two Prerequisites

• An effective regional management plan
• Constant involvement of regional stakeholders
  – Residents
  – Business community
  – Political Officials
  – Community leaders
  – Advocacy groups (natural and cultural resources, social services, etc.)
Visitor Flow Determinants

• Location of essential facilities
• Types of activities
• Circulation and sequence
• Use level, timing, and seasonality
• Activity nodes
• Special use areas
• External development and land use
• Key uses in site and out
Management Zones are Determined by

- Visitor flow
- Resource conditions
- Social conditions
- Kinds and levels of development
- Kinds and levels of management activity
- Most importantly: organizational mission
  - Kinds and levels of current and desired use
  - Desired condition of each zone
Monitoring Framework

- **Indicators**: key resource, activity, and experience conditions to be documented
- **Instruments**: how conditions are documented
- **Standards**: acceptable conditions
- **Output**: metrics for each management zone: figures that can be presented to stakeholders to guide management decisions.
Effective Conservation Requires a Regional, Systemic Approach

• The instruments required for an understanding of cultural/environmental systems are available
  – Can also be used for monitoring such systems

• It remains that they be deployed within an effective management system supported locally, regionally, and globally
The Burren

• Choosing degree of authenticity

• You live here