Assessing Public Environmental Values
Survey Methods

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Preference-based Values

Brown, 1984

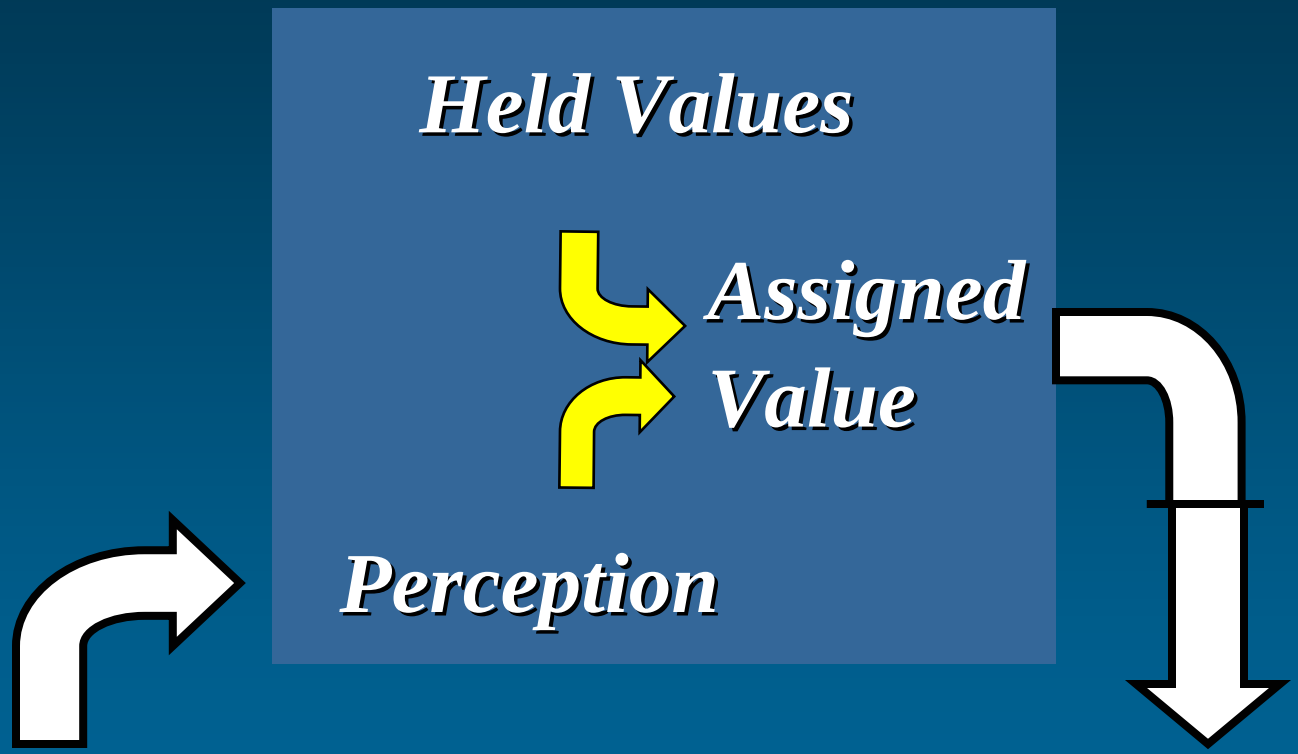
Held Values

"...enduring conceptions of the preferable"

Assigned Values

"Relative importance or 'worth' of a particular object in a particular context"

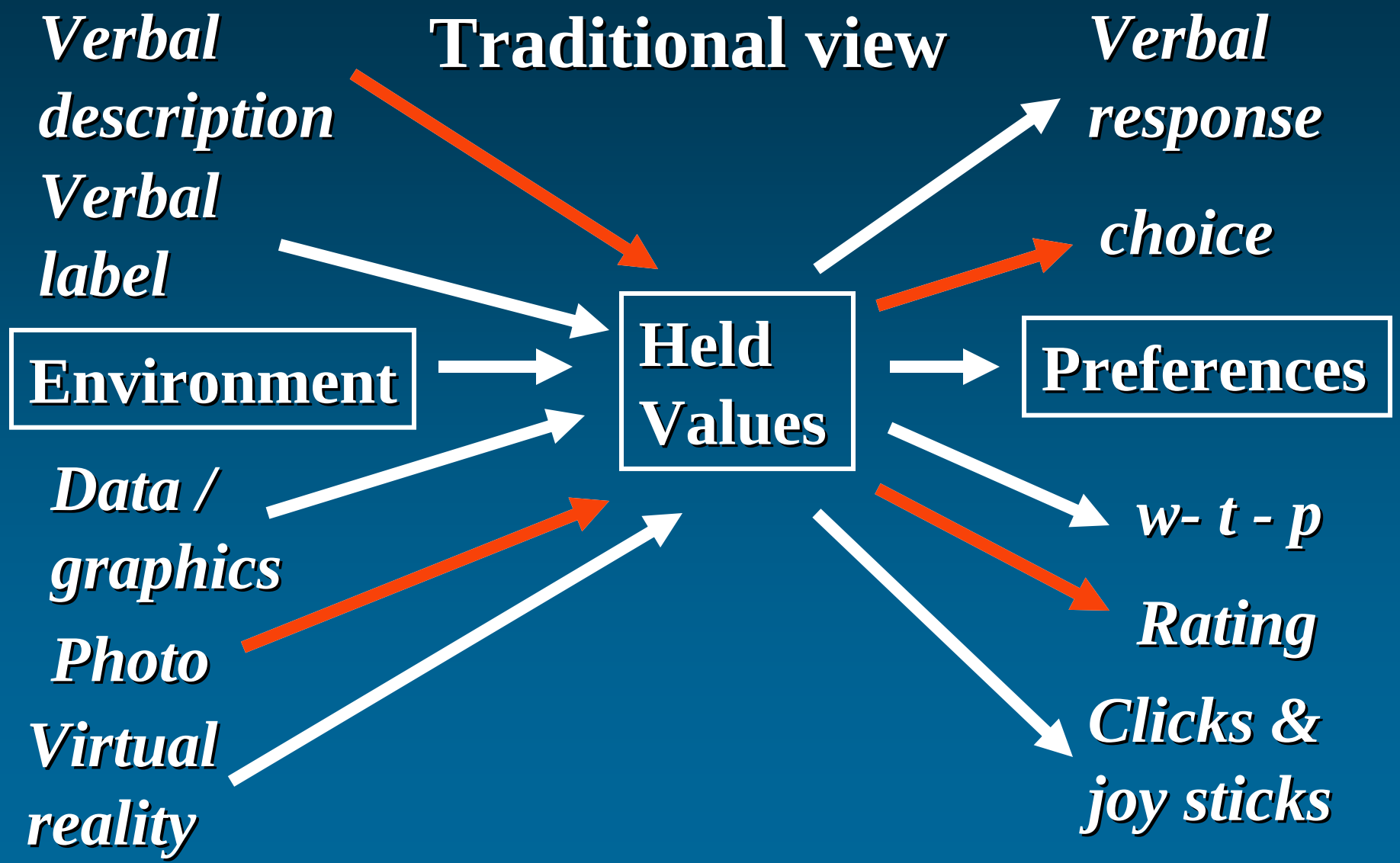
“Traditional” Model

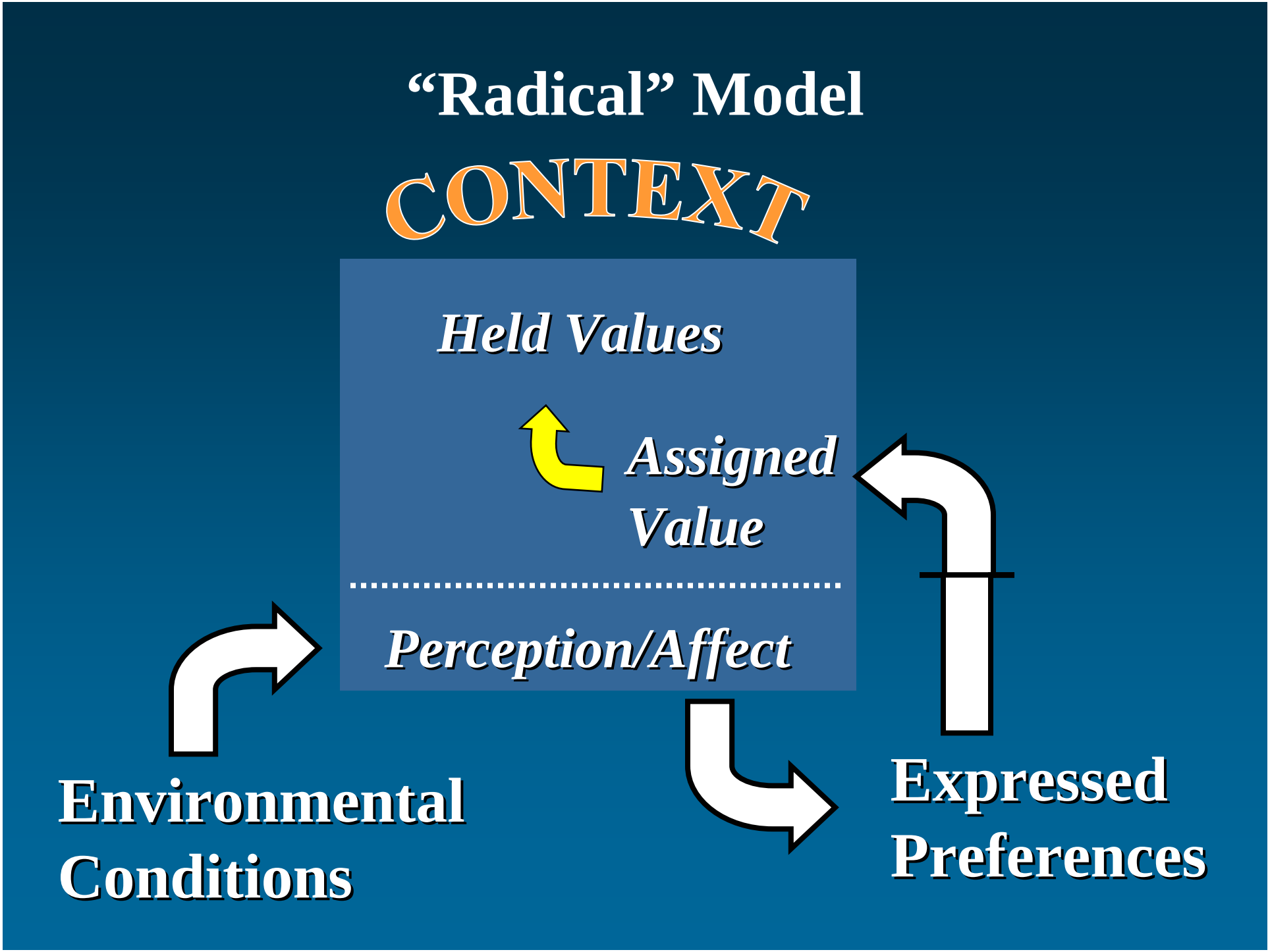


Environmental Conditions

Expressed Preferences

Values and Expressed Preferences




"Radical" Model
CONTEXT
Held Values
Assigned Value
Perception/Affect
Environmental Conditions
Expressed Preferences

Socio-psychological assessments

- Essentially parallel to economic "stated preference" methods
- Preferences (judgments) expressed as choices, rankings or ratings—not w-t-p $
- Value metrics include *importance*, *liking*, *preference*, *acceptance* (rarely dollars)
- Under-informed, undeliberated, irrational public response to policies/outcomes
  - Relative, multidimensional and contextual

Survey Method Issues

Target

- Specific actions, outcomes or general policies
- Means, ends, equity issues, institutional

Constituencies

- General public, local communities, “stakeholders”
- Acting for self, household, nation, humanity

Representations

- Verbal (descriptions, labels), graphic, multi-media, direct/on-site

Survey Method Issues 2

Contact

- Mail, telephone, face-to-face (intercept, home, work)

Expressions

- Preferences, knowledge, beliefs, intensions, attitudes, acceptance
- Open and/or closed (choices, ratings, allocations)

Analysis

- Factor analysis, multiple-regression, causal models
- Items => factors (conceptual attributes)
- Respondents => types (dispositions/biases)

Survey Methods

Multi-item survey

- Distinct verbal statements
- Closed responses (ratings)
- Mail, telephone, face-to-face, internet

Conjoint

- Multi-dimensional scenarios (designed)
- Verbal descriptions/stories
- Choice and/or rating responses

Survey Methods 2

Perceptual Survey

- Visual or multi-media representations
- Conjoint or part of conjoint
- Closed responses
- Mail, face-to-face, internet

Behavior Observation

- Traces, diaries, registrations, monitoring (cameras, step pads, etc), direct observation
- "Revealed preferences"

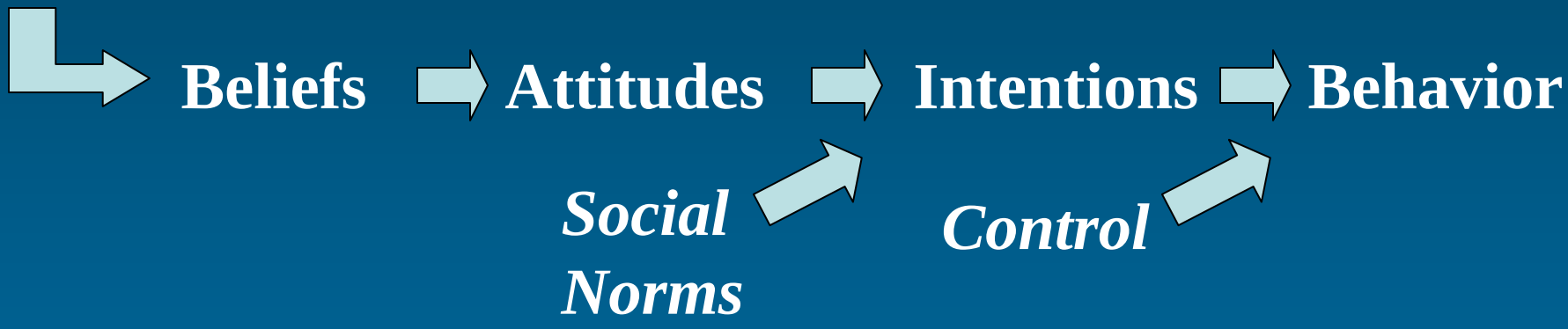
Multi-item Verbal Survey

- USDA Forest Service
- GPRA, Strategic Plan (Shields et al 2002)
- Telephone survey (n = 7,000+)
- Values, Objectives, Beliefs & Attitudes
- 30 items each (overlapping)
  - Each respondent gets subset
- 5-point rating scales (agree, importance, favor)

Theory of Planned Behavior

Rational model

Environmental Conditions



Values

2. Natural resources must be preserved even if people must do without some products.

Strongly disagree	1	2	3	4	5	Strongly agree

15. Forests have a right to exist for their own sake, regardless of human concerns and uses.

19. The most important role for the public lands is providing jobs and income for local people.

Objectives

5. Developing new paved roads on forests and grasslands for access for cars and recreational vehicles.

Not at all important 1 2 3 4 5 Very important

.....

9. Protecting ecosystems and wildlife habitats.

26. Making management decisions concerning the use of forests and grasslands at the local level rather than at the national level.

Beliefs

5. Developing new paved roads on forests and grasslands for access for cars and recreational vehicles.

Strongly disagree	1	2	3	4	5	Strongly agree

8. Preserving the natural resources of forests and grasslands through such policies as no timber harvesting or no mining.

25. Allowing for diverse uses of forests and grasslands such as grazing, recreation, and wildlife habitat.

Attitudes

5. Developing new paved roads on forests and grasslands for access for cars and recreational vehicles.

Very unfavorable	**1**	**2**	**3**	**4**	**5**	**Very favorable**

9. Protecting ecosystems and wildlife habitats.

22. Informing the public on the economic value received by developing our natural resources.

Results

Demographics

- East vs West x Metro vs non-metro

Familiarity with USFS

- “Factual questions” (*FS sets hunting regulations*)

Mean rating per VOBA item

Factors (composed item-response patterns)

- Socially Responsible Individual Values
- 4.16 out of 5.0 (5.0 = biocentric)
- Socially Responsible Management Values
- 2.94 out of 5.0 (5.0 = develop/consume)

Conclusions

Re: preservation/conservation:

" … important objectives for the public are the preservation of natural resources through policies that restrict commodity uses, protection of ecosystems and wildlife habitat, and preservation of the ability to enjoy a "wilderness" experience. A somewhat important objective is the preservation of local cultural uses.

Conjoint Example

USDA Forest Service

- Wildfire risk management (Kneeshaw et al 2004; University cooperative research)
- Forests near Denver, Seattle, Los Angeles
- 3 different fire histories
- Direct contact (2706) => mail survey (1288)
- 3 policies (suppress, control, let-burn)
- Rate *Acceptability* (7-points, -3 to 0 to +3)

Conjoint Scenarios

Five attributes (dimensions), 2 levels each

- **Origin of fire (lightning vs. humans-unintentional**
- **Impact on air quality (none vs. poor air quality)**
- **Risk of private property damage (low vs. high)**
- **Forest recovery (quick vs. many years)**
- **Recreation Impact (remain open vs. closed)**

Fractional Factorial Design

- **Main effects tests only**
- **=> 8 Scenarios**
- **Regression coefficients for each dimension**

Conjoint Scenarios

Least Accepted Scenario (let-burn policy)

- Human-caused fire
- Poor air quality
- High risk of private property damage
- Many years for forest to recover
- Recreation areas closed for the season

Most Accepted Scenario (let-burn policy)

- Lightening-caused fire
- No affect on air quality
- Low risk of private property damage
- Rapid recovery of forest
- Recreation areas remain open

Conjoint Results

Acceptance of Let-burn Policy

%	Attribute of Fire
16	Origin of fire
18	Impact on air quality
26	Risk of private property damage
23	Forest recovery
16	Recreation Impact

Perceptual Survey Example

- University research—USFS sponsored
- Northwest Forest Plan (spotted owl)
  - 57 nominal interest groups in NW span *preservation* to *production* (Ribe 2002)
  - Direct contact, 1120 respondents, in groups
  - Verbal questions re: policy attitudes
  - 115 color slides ranging from fresh large clear-cuts to pristine forest

Verbal/Attitude Component

I believe the northern spotted owl is not threatened with extinction.

Strongly disagree	**1**	**2**	**3**	**4**	**5**	**Strongly agree**

I believe the northern spotted owl should be saved even at a high economic cost.

Cluster analysis to yield 3 distinct, coherent groups:

- ***Productionists***
- ***Unaligned***
- ***Protectionists***

Perceptual Component

Independent groups (≅ random assignment)

Scenic Beauty **(11 point scale)**

-5 (very ugly) to +5 (very beautiful)

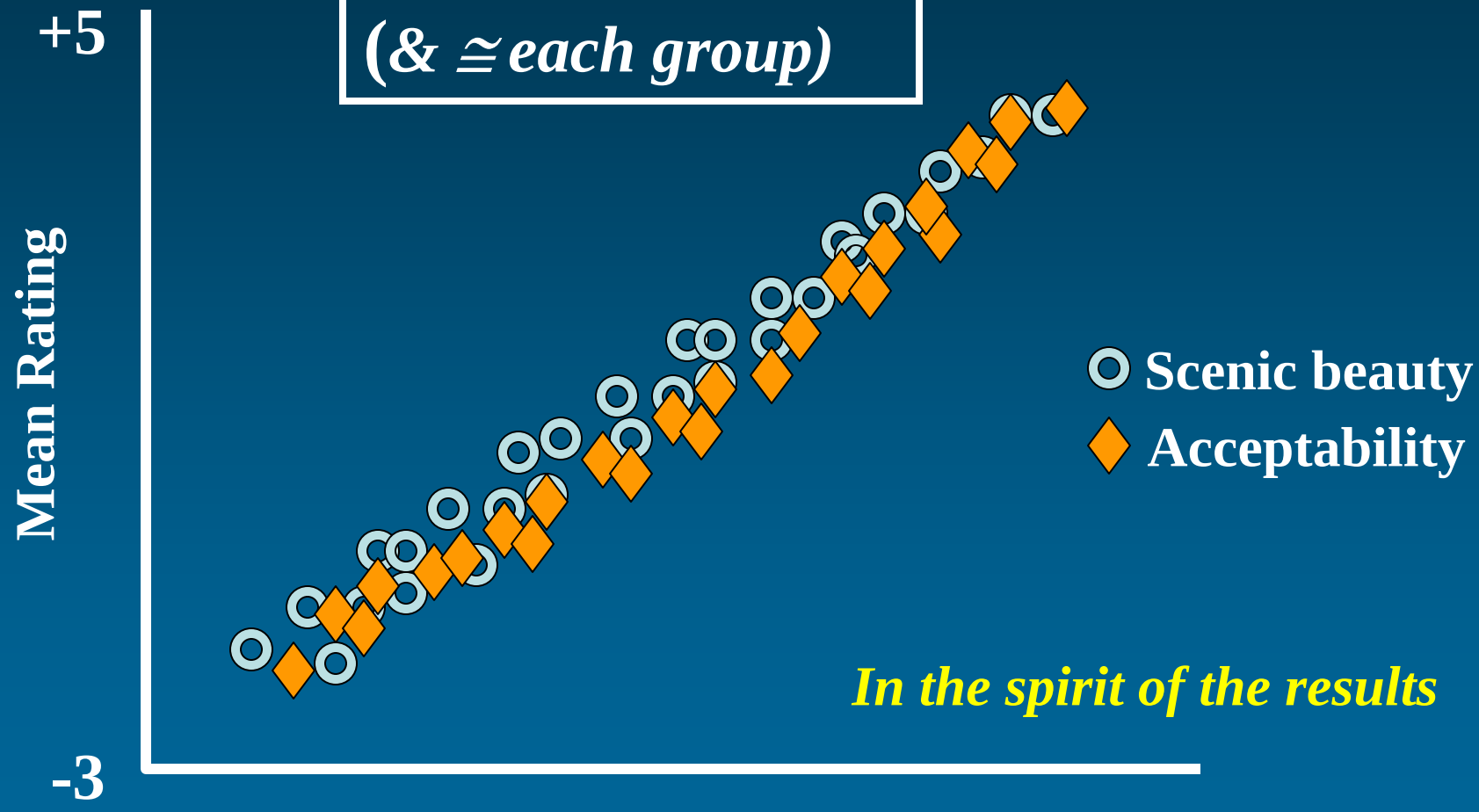
Acceptability **(as National Forest condition)**

-5 (very unacceptable) to +5 (very acceptable)

Apply knowledge & sensibilities re: NF management

Perceptual Results

All Respondents
(& ≅ each group)



Perceptual Results

Acceptability: comparison