



Benefit Transfer Toolkit

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Overview:

1. What is benefit transfer & why have a “toolkit”?
2. History of the Toolkit
3. Reasons for Updates
4. Updates
5. Future of the Toolkit



What is benefit transfer & why have a toolkit?

- ▶ **Benefit Transfer:** Use results from pre-existing primary studies to predict welfare estimates of unstudied policy sites.
- ▶ Why have a “**toolkit?**”
 - ▶ Agencies have limited time and budgets
 - ▶ No need to replicate existing study
 - ▶ Literature reviews
 - ▶ Can help highlight data gaps and prioritize new primary data collection
- ▶ Can be used for:
 - ▶ BCAs
 - ▶ Damage assessments
 - ▶ Regulatory impact analyses



Benefit Transfer Toolkit History

▶ **Recreation Values Database**

- ▶ Started in early 1980s with Sorg and Loomis (1984) for USFS
- ▶ Updated for USFS with Loomis (2005)
- ▶ Later housed at Oregon St. - Rosenberger (2006)
- ▶ Future updates - Rosenberger (2017)

▶ **Benefit Transfer Toolkit 1.0** (*CSU*)

- ▶ Colorado State University & Defenders of Wildlife
- ▶ Methods: Loomis, Kroeger, Richardson, and Casey (2008)
- ▶ Largely “wildlife-focused;” downloadable spreadsheets; meta-regressions; relatively “simple”

▶ **Benefit Transfer Toolkit 2.0** (*USGS, Rosenberger, and Loomis*)

- ▶ BLM-Centric: Recreation and T&E species
- ▶ Web-based
- ▶ New meta-regression analyses (*hunting, fishing, wildlife viewing, trail-based recreation*)

Home page of Version 2.0

- Look was outdated
- Usability was not fluid
- Limited scope of databases



USGS Home
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Toolkit HomeBenefit TransferDocumentationExamplesTerms and Definitionslogin

Welcome to the Benefit Transfer Toolkit

This toolkit is for natural resource planners, socioeconomic analysts, field staff and others involved in land use planning on public lands. This toolkit provides economic value estimates and other information on resources that are not priced in conventional markets.

There are 2 major components to this toolkit:


1. A set of reference databases that contains roughly 2900 value estimates. These databases can be sorted by citation, location, data years, valuation method, and economic value estimate. The databases are grouped by activity.
2. An interactive calculator that provides instant values on a spending activity/day of various activities. The statistical model used for the calculator can be displayed as well. (login required to access the calculator)



Click on one of the following links to access the reference databases of studies and average value tables:

Recreation Use Databases
[Backpacking](#)
[Boating \(Motorized and Non-motorized\)](#)
[Camping](#)
[Fishing](#)
[General Recreation](#)
[Hiking](#)
[Horseback Riding](#)
[Hunting](#)
[Mountain Biking](#)
[Off-Highway Vehicle](#)
[Rock Climbing](#)
[Snowmobiling](#)
[Wildlife Viewing](#)

Total Economic Value
[Threatened, Endangered, and Rare Species](#)



The links for statistical models that can be used for a meta-regression function transfer require a login:

[Fishing](#)
[Hunting](#)
[Trail Use](#)
[Wildlife Viewing](#)



Reasons for Updates

- ▶ Increased usability
- ▶ Improved aesthetics
- ▶ Wider user base
 - ▶ County and municipal planners
- ▶ Incorporate more studies for ecosystem service valuation

Updates: Benefit Transfer Toolkit 3.0

- ▶ Web-team at FORT enhanced user interface; developed map
- ▶ Water-based recreation databases
- ▶ Water quality database
- ▶ Salmon database



Benefit Transfer Toolkit

Future work on the Toolkit



- ▶ Bayesian Econometrics and understudied ecosystems
- ▶ Additional databases?
 - ▶ In-stream flows
 - ▶ Coastal protection
 - ▶ Air quality
 - ▶ Cultural resources
 - ▶ More recreation (e.g., downhill skiing, mushroom collection)
- ▶ Further test usefulness with partners (case studies?)
- ▶ Start thinking about including studies published after '14



Questions?

Welcome to the Benefit Transfer Toolkit



This toolkit is for natural resource planners, socioeconomic analysts, field staff and public land managers. This toolkit compiles economic values estimates and other information on resources not priced in conventional markets.



Recreation Use Databases

A set of reference databases that contains roughly 2900 value estimates. These databases can be sorted by citation, location, data years, valuation method, and economic value estimate.

(Full screen view only)

[View Databases -](#)

Statistical Models Meta-regression

Interactive forecasting tools that can tailor economic value estimates for hunting, fishing, wildlife viewing, and trail-use recreation. The underlying statistical models for these forecasting tools can be accessed as well. A login is required to use the models.

(Full screen view only)

[View Calculators -](#)

Recreation Activities Map

A user-friendly map that displays the location of studies included in the recreation values databases. Users can filter mapped observations by recreation activities and U.S. regions.

(Full screen view only)

[View Map -](#)

Total Economic Value Database

Threatened, Endangered, and Rare Species. *(Full screen view only)*

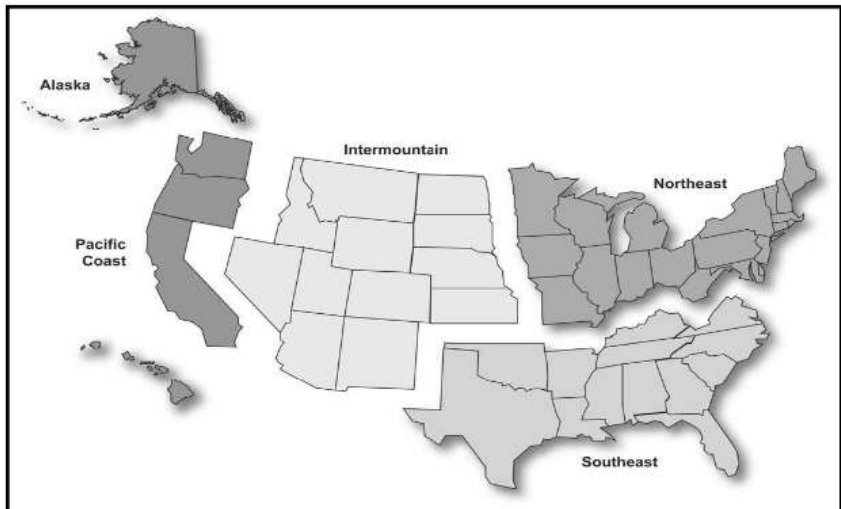
[View Databases -](#)

This toolkit was developed with funding from the Bureau of Land Management, the National Park Service, and the USGS Sustaining Environmental Capital Initiative. Development of the USGS Benefit Transfer Toolkit could not have been possible without the support of John Loomis at Colorado State University and Randy Rosenberger at Oregon State University.

Reference	Location	Site Name	Valuation Method	Economic Value Estimate (4)	Units (converted from original units)
Acharya, R.N., L.U. Hatch and H.A. Clonts. 2003. The role of on-site time in recreational demand for wilderness. Journal of Agricultural and Applied Economics 35(1):159-169.	AL	Cheaha Wilderness	Travel Cost Method	\$20.49	Per Person Per Day*
Acharya, R.N., L.U. Hatch and H.A. Clonts. 2003. The role of on-site time in recreational demand for wilderness. Journal of Agricultural and Applied Economics 35(1):159-169.	AL	Cheaha Wilderness	Travel Cost Method	\$44.57	Per Person Per Day*
Acharya, R.N., L.U. Hatch and H.A. Clonts. 2003. The role of on-site time in recreational demand for wilderness. Journal of Agricultural and Applied Economics 35(1):159-169.	AL	Sipsey Wilderness	Travel Cost Method	\$15.45	Per Person Per Day*
Acharya, R.N., L.U. Hatch and H.A. Clonts. 2003. The role of on-site time in recreational demand for wilderness. Journal of Agricultural and Applied Economics 35(1):159-169.	AL	Sipsey Wilderness	Travel Cost Method	\$57.16	Per Person Per Day*
Bergstrom, J.C. and H.K. Cordell. 1991. An analysis of the demand for and value of outdoor recreation in the United States. Journal of Leisure Research 23(1):67-86.	USA	---	Travel Cost Method	\$53.93	Per Person Per Day
Bowker, J.M., C.M. Starbuck, D.B.K. English, J.C. Bergstrom, R.S. Rosenberger and D.W. McCollum. 2009. Estimating the net economic value of national forest recreation: An application of the National Visitor Use Monitoring Database. Faculty Series Working Paper, FA 09-02. Athens, GA: The University of Georgia, Department of Agricultural and Applied Economics. 222pp.	TX, OK, AR, LA, MS, AL, GA, FL, KY, TN, SC, NC, VA	---	Travel Cost Method	\$52.36	Per Person Per Day
Bowker, J.M., C.M. Starbuck, D.B.K. English, J.C. Bergstrom, R.S. Rosenberger and D.W. McCollum. 2009. Estimating the net economic value of national forest recreation: An application of the National Visitor Use Monitoring Database. Faculty Series Working Paper, FA 09-02. Athens, GA: The University of Georgia, Department of Agricultural and Applied Economics. 222pp.	USA	---	Travel Cost Method	\$30.77	Per Person Per Day
Bowker, J.M., C.M. Starbuck, D.B.K. English, J.C. Bergstrom, R.S. Rosenberger and D.W. McCollum. 2009. Estimating the net economic value of national forest recreation: An application of the National Visitor Use Monitoring Database. Faculty Series Working Paper, FA 09-02. Athens, GA: The University of Georgia, Department of Agricultural and Applied Economics. 222pp.	AZ, CO, ID, KS, MT, ND, NE, NM, SD, UT, WY	---	Travel Cost Method	\$22.68	Per Person Per Day
Bowker, J.M., C.M. Starbuck, D.B.K. English, J.C. Bergstrom, R.S. Rosenberger and D.W. McCollum. 2009. Estimating the net economic value of national forest recreation: An application of the National Visitor Use Monitoring Database. Faculty Series Working Paper, FA 09-02. Athens, GA: The University of Georgia, Department of Agricultural and Applied Economics. 222pp.	MN, WI, MI, IA, MO, IL, IN, OH, WV, MD, DE, PA, RI, NJ, NY, VT, NH, MA, ME, CT	---	Travel Cost Method	\$60.18	Per Person Per Day
Bowker, J.M., C.M. Starbuck, D.B.K. English, J.C. Bergstrom, R.S. Rosenberger and D.W. McCollum. 2009. Estimating the net economic value of national forest recreation: An application of the National Visitor Use Monitoring Database. Faculty Series Working Paper, FA 09-02. Athens, GA: The University of Georgia, Department of Agricultural and Applied Economics. 222pp.	TX, OK, AR, LA, MS, AL, GA, FL, KY, TN, SC, NC, VA	---	Travel Cost Method	\$67.67	Per Person Per Day
Bowker, J.M., C.M. Starbuck, D.B.K. English, J.C. Bergstrom, R.S. Rosenberger and D.W. McCollum. 2009. Estimating the net economic value of national forest recreation: An application of the National Visitor Use Monitoring Database. Faculty Series Working Paper, FA 09-02. Athens, GA: The University of Georgia, Department of Agricultural and Applied Economics. 222pp.	AZ, CO, ID, KS, MT, ND, NE, NM, SD, UT, WY	---	Travel Cost Method	\$13.21	Per Person Per Day
Bowker, J.M., C.M. Starbuck, D.B.K. English, J.C. Bergstrom, R.S. Rosenberger and D.W. McCollum. 2009. Estimating the net economic value of national forest recreation: An application of the National Visitor Use Monitoring Database. Faculty Series Working Paper, FA 09-02. Athens, GA: The University of Georgia, Department of Agricultural and Applied Economics. 222pp.	TX, OK, AR, LA, MS, AL, GA, FL, KY, TN, SC, NC, VA	---	Travel Cost Method	\$38.89	Per Person Per Day
Bowker, J.M., C.M. Starbuck, D.B.K. English, J.C. Bergstrom, R.S. Rosenberger and D.W. McCollum. 2009. Estimating the net economic value of national forest recreation: An application of the National Visitor Use Monitoring Database. Faculty Series Working Paper, FA 09-02. Athens, GA: The University of Georgia, Department of Agricultural and Applied Economics. 222pp.	USA	---	Travel Cost Method	\$25.74	Per Person Per Day
Bowker, J.M., C.M. Starbuck, D.B.K. English, J.C. Bergstrom, R.S. Rosenberger and D.W. McCollum. 2009. Estimating the net economic value of national forest recreation: An application of the National Visitor Use Monitoring Database. Faculty Series Working Paper, FA 09-02. Athens, GA: The University of Georgia, Department of Agricultural and Applied Economics. 222pp.	AZ, CO, ID, KS, MT, ND, NE, NM, SD, UT, WY	---	Travel Cost Method	\$22.22	Per Person Per Day
Bowker, J.M., C.M. Starbuck, D.B.K. English, J.C. Bergstrom, R.S. Rosenberger and D.W. McCollum. 2009. Estimating the net economic value of national forest recreation: An application of the National Visitor Use Monitoring Database. Faculty Series Working Paper, FA 09-02. Athens, GA: The University of Georgia, Department of Agricultural and Applied Economics. 222pp.	MN, WI, MI, IA, MO, IL, IN, OH, WV, MD, DE, PA	---	Travel Cost Method	\$13.58	Per Person Per Day



Average Values



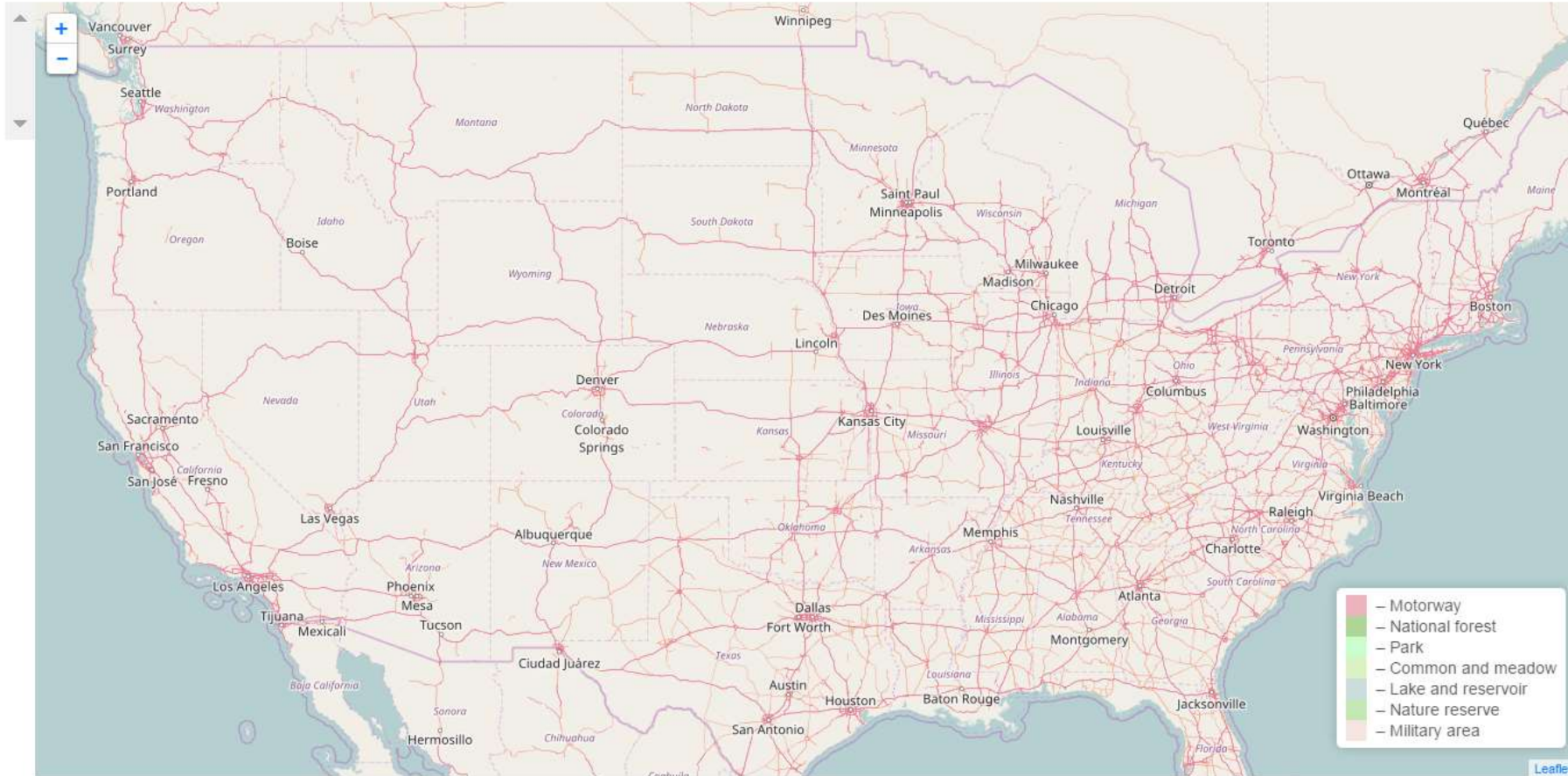
Backpacking Averages - Activity Detail

Region	Sample Size	Average Value
Alaska	---	---
Intermountain	5	\$28.93
Multiple Areas	4	\$32.16
Northeast	34	\$11.19
Pacific Coast	3	\$24.75
Southeast	7	\$42.37

Map Filter by Recreation

Recreational Activities

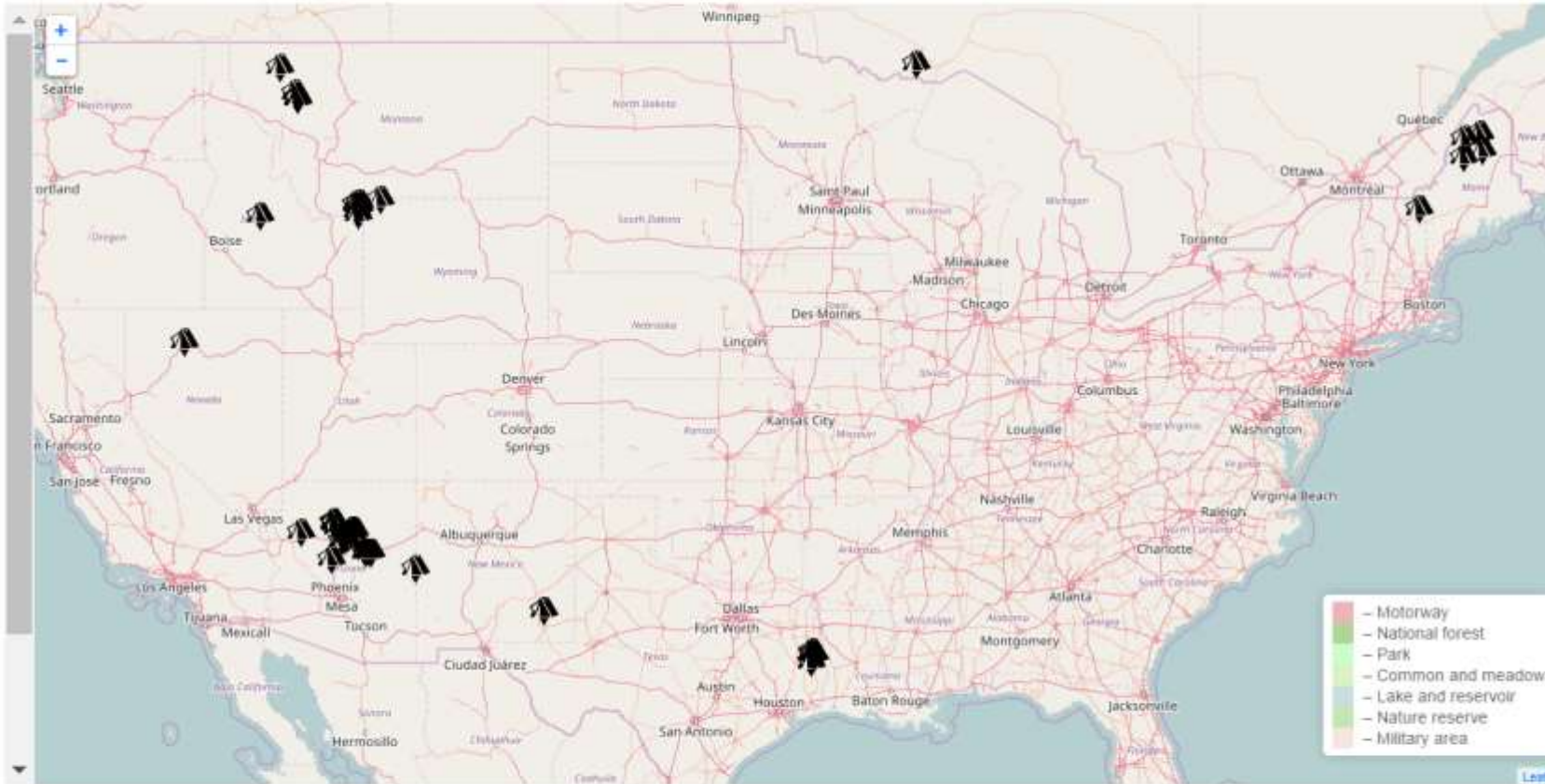
Regions



Map Filter by Recreation

Recreational Activities

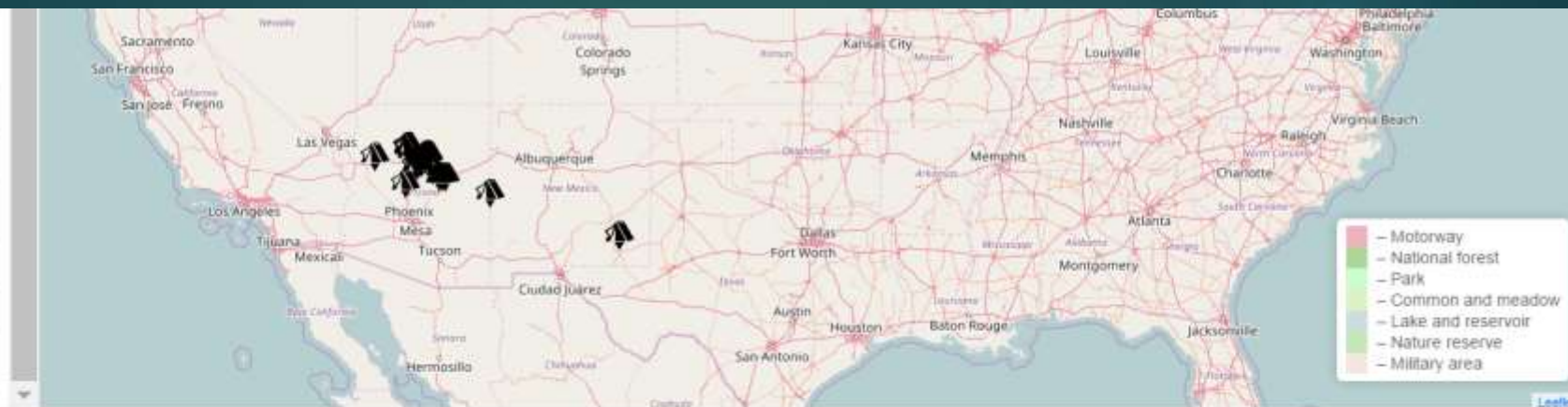
- ☐ Backpacking
- ☐ Beach Use
- ☐ Boating
- ☒ Camping
- ☐ Diving
- ☐ Fishing
- ☐ General Recreation
- ☐ Hiking
- ☐ Hunting
- ☐ Horseback Riding
- ☐ Mountain Biking
- ☐ Off-Highway Vehicle
- ☐ Rock Climbing
- ☐ Snowmobiling
- ☐ Swimming



Camping

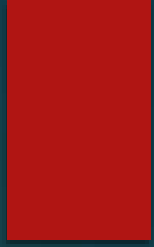
Regions

- ☐ Alaska
- ☒ Intermountain
- ☐ Multiple Areas
- ☐ Northeast
- ☐ Pacific Coast
- ☐ Southeast



Camping

Study Title	State	Site Name	Valuation Method	URL	Economic Value Estimate
Richards, M.T., D.A. King, T.C. Daniel and T.C. Brown. 1990. The lack of an expected relationship between travel cost and contingent value estimates of forest recreation value. Leisure Sciences 12:303-319.	AZ	Rock Crossing Campground, Coconino National Forest	Contingent Valuation Method	Study Detail	\$2.13
Richards, M.T., D.A. King, T.C. Daniel and T.C. Brown. 1990. The lack of an expected relationship between travel cost and contingent value estimates of forest recreation value. Leisure Sciences 12:303-319.	AZ	Dairy Springs Campground, Coconino National Forest	Contingent Valuation Method	Study Detail	\$3.84
Richards, M.T., D.A. King, T.C. Daniel and T.C. Brown. 1990. The lack of an expected relationship between travel cost and contingent value estimates of forest recreation value. Leisure Sciences 12:303-319.	AZ	Ashurst Lake Campground, Coconino National Forest	Contingent Valuation Method	Study Detail	\$2.79
Richards, M.T., D.A. King, T.C. Daniel and T.C. Brown. 1990. The lack of an expected relationship between travel cost and contingent value estimates of forest recreation value. Leisure Sciences 12:303-319.	AZ	Canyon Point Campground, Coconino National Forest	Contingent Valuation Method	Study Detail	\$13.13
Richards, M.T., D.A. King, T.C. Daniel and T.C. Brown. 1990. The lack of an expected relationship between travel cost and contingent value estimates of forest recreation value. Leisure Sciences 12:303-319.	AZ	Christopher Creek Campground, Coconino National Forest	Contingent Valuation Method	Study Detail	\$8.16
Richards, M.T., D.A. King, T.C. Daniel and T.C. Brown. 1990. The lack of an expected relationship between travel cost and contingent value estimates of forest recreation value. Leisure Sciences 12:303-319.	AZ	Spillway Campground, Coconino National Forest	Contingent Valuation Method	Study Detail	\$7.00
Richards, M.T., D.A. King, T.C. Daniel and T.C. Brown. 1990. The lack of an expected relationship between travel cost and contingent value estimates of forest recreation value. Leisure Sciences 12:303-319.	AZ	Pine Grove Campground, Coconino National Forest	Contingent Valuation Method	Study Detail	\$30.32



Two main types of benefit transfer

1. **Value Transfer** - transferring a single point estimate, range of estimates, or measure of central tendency
2. **Function Transfer** - transferring an entire demand function from an existing study, or using a meta-regression function from multiple studies to forecast a tailored value estimate

