# Mapping the Lewis & Clark Expedition, 1804-1806
## An ArcVoyager Lesson

### Introduction

The Lewis and Clark expedition, the Journey of the Corps of Discovery, represents a defining moment in United States and North American history. This expedition forever destroyed the myth of an easy east to west river-portage-river passage to the Pacific Ocean, a variation of the fabled Northwest Passage. It also changed the world's knowledge of geography, earth science, biology, cultures, and world's extent.

The Corps of Discovery's successful round trip helped spark a new myth of westward expansion with a full range of positive and tragic consequences. The expedition's main protagonists, a scientist-geographer-president of the United States with a long-standing interest in the west and two military and scientific explorers, provided the mission and zeal and raw human endurance to see the quest to its successful end. In its course, the intrepid duo of Lewis and Clark and a cast of other significant characters became a well-tuned team that survived and surpassed threats, privations, and unknown geographies.

### Objective

This exercise allows you to take a birds-eye view of the entire expedition route and a number of key sites along the way. Using an existing ArcVoyager project, you will map layers of new data related to the expedition, ask and answer geographic questions, and investigate the expedition route's relationship to terrain and other factors.

***To begin…***

1. Deposit the contents of the LEWCLARK\DATA directory (GIS data necessary for this exercise) on your computer's hard drive or to your computer network.
2. If ArcVoyager is brand new to you, work through the extra exercises that came with this lesson package. They are in the LEWCLARK\VOYSTART directory.
3. **What you should already know:** This lesson assumes you have familiarity with basic navigation (zoom  , pan  , and focused displays  ), turning themes on and off, making a theme active, and using the identify tool . If these look unfamiliar, work with the lessons noted above.
4. **Start ArcVoyager**. (If you are not sure how to do this, ask your teacher.)
5. The *ArcVoyager Guide* will appear. Scroll down and click on the link called **Point Me**.
6. Click on **United States** and select **Reference Map**.
7. In the new dialog box *click* on the **magnifying glass**  to start the project. The *US Reference Map* project will appear behind this window.
8. If still open, close the *ArcVoyager Guide*. (You can always bring this window back by going to the Help menu and choosing *ArcVoyager Guide*.)

1. **Key Thought:** It is important to remember that Lewis and Clark and their team (and others of the day) were, literally, exploring. They had only limited knowledge about where they were going, how long it would take, and what they would encounter. As you work through this exercise, try to keep in mind that you have the benefit of 200 years on your side: the holes on the map have been filled in. Your time advantage includes the technology you are using and the geographic data about the continent which Lewis and Clark and others helped bring to you.

2. Scroll down the **Table of Contents** (left side of the project window) to see the range of themes ready for your use. Many are recent population data; others are physical geographic characteristics.

3. Let's put you on the map to show your position in relationship to the historical data you will be adding. Click the **Draw Point** tool  . Inside the map, find your approximate location and click your cursor. This drops a black dot on the map. If you want to change it, click the Delete key and redo the dot. When you are done, click on your **Pointer tool**  and then click one time anywhere on the map. This will turn off the black handles around the dot. (Note: If you accidentally make a lot of black dots, remove by clicking on them using the Pointer tool and then clicking the Delete key.)

4. Now, you need to add some historical themes to your view. Click on the **Add Theme** button  . In the dialog box that appears, navigate to the **LEWCLARK\DATA** directory. From the list of files that appears in the left side of the box, hold down the **SHIFT** key, select the following files, and then click on **OK**.

   **KEY_PASS.SHP**
   **LA_PUR1.SHP**
   **LC_SITES.SHP**
   **LEWISCLA.SHP**

5. You will see the names of these themes appear at the top of the list in the **Table of Contents**. Turn on these new themes by placing a check mark the gray box to the left of the theme. What do these things represent? (**Hint:** To find out more about each of these use the **Identify tool**  . Make sure the layer you want to investigate is an active theme [click one time on the theme name], then click the Identify tool, and then click on a feature in the map. Once done, close the Identify Results dialog box. Also, read the TXT or PDF files in the LEWCLARK\DATA directory for details.)

   **KEY_PASS.SHP** _____

   **LA_PUR1.SHP** _____

   **LC_SITES.SHP** _____

   **LEWISCLA.SHP** _____

**Psst!** If you want to rename each theme, make the theme active. Go to the **Theme menu, Rename.**

6. The themes will now appear in your **View**. You need to change the order that the themes are drawn in (ArcVoyager draws themes from bottom to top). To do this, click and hold you cursor on the theme name, drag the theme up or down in the **Table of Contents** and then release the mouse button. Do this until the themes appear in the following order from the top: (1) KEY_PASS.SHP (2) LC_SITES.SHP (3) LEWISCLA.SHP (4) LA_PUR1.SHP.

7. Make a few observations about what is now being mapped.

   Are you (the dot) within the boundaries of the Louisiana Purchase?

   _____

   Are you near the Lewis and Clark expedition route?

   _____

   Within what part of the country does this expedition take place?

   _____

   Where did the explorers start and where were they going?

   _____

   Is all of the expedition inside the Louisiana Purchase area?

   _____

   If no, where else did they go? (States are okay.)

   _____

8. You probably noticed that expedition route seems pretty simple to begin with but then it gets complicated. Why do you think this is? (**Hard to see the route?** To best see this, turn off the KEY_PASS.SHP, LC_SITES.SHP, and LA_PUR1.SHP.)

   _____

   _____

9. To help see part of the answer, let's add another theme to your map, landforms (using a shaded relief image of the 48 contiguous states from the US Geological Survey). Click on the **Add Theme** button  . In the dialog box that appears, go to the **<DRIVE>:\VOYAGER\DATA\IMAGE** directory. (NOTE: This the

   Set the **Data Source Type** (which appears in the bottom left of the dialog box) to Image Data Source. From the list of files that appears in the left hand side of the box, select the following file and then click on **OK**.

   **USA.TIF**

   **Too general?** As you zoom in on areas of the map, you will notice that this shaded relief image pixelates (gets blocky) fairly quickly. It was designed as a low-resolution, small-sized image file. A much higher resolution version is available. This file, **US_48BIG.TIF** (22MB), is located in the \GISDATA\IMAGES directory on ESRI's *GIS for Schools & Libraries* CD-ROM (available at http://www.esri.com/industries/k-12/k-12form.html).

10. Once added to the View, drag the USA.TIF theme down toward the bottom of the **Table of Contents**. Position it just above *Western Hemisphere Countries* in the list.

11. Also near the bottom of the **Table of Contents** turn off the *United States* theme so the shaded relief image is not covered when you turn on USA.TIF.

12. Tighten your map's focus to the area covered by the expedition route. First, make sure that LEWISCLA.SHP is the active theme (click one time on its name), and then click the **Zoom to Active Theme(s) button**  **.**

13. By looking at the map, how does the nature of the terrain change as the expedition headed west?

    _____

14. Lewis and Clark began by using one of the superhighways of their day, a river.

    What is the name of the river they traveled? _____

    Of what river system is it part? _____

    To find out, make Major Rivers (U.S.) the active theme (click once on its name). Use the **Identify tool**  .

15. As they neared the Pacific Ocean, they found another river highway.

    What is it? _____

16. In between these main rivers, they traveled many smaller ones that are not included in this project, but the biggest things they ran into were mountains. As a result, their trip became complicated. On the map, this is the area where the “simplicity” of the line (connected to the rivers) disappears into many twists and turns and lines overlapping lines.

17. To get a closer look at this complex travel area, use the **Zoom In tool**  , to click, hold, and drag a box around the route in the states from Montana to the west. The ruggedness of the terrain is even more apparent.

    **Got lost?** If you get lost or need to redo a zoom, click the **Zoom to Previous Extent button**  to go back. You can also finetune the area you are seeing in the map display by using the **Pan tool**  .

18. In these mountainous areas, what geographic features does the trail appear to generally follow? Ridges? Valleys? Both? Other features? (This is best seen with the high-resolution image **US_48BIG.TIF** talked about in Step 9.)

    _____

19. Remember as you look at this area, that you have the benefit of existing maps and technology to give you the big picture. Lewis and Clark had these too but they were limited by our space- and computer-age standards. Their big picture was filled with geographic blanks. They were on the ground and had no real idea of what the best route was. They used their tools, scouts, wits, and 19th century know-how to succeed. In addition, a most essential ingredient was the help of Native Americans living in these areas, especially from Sacagawea. Without their help, the expedition might not have survived. (You may want to zoom out a bit to get a better view.)

    Do you think you can see a better route (or routes)? Where is it? If you were to design a new route for the explorers, besides mountains and rivers, are there other things that you would want to consider in deciding the best way west? (You may want to zoom or pan around areas to get a better view.)

    _____

    _____

20. In looking at the many twists and turns of the expedition route in this area, it is very difficult to know what any of these segments mean. With LEWISCLA.SHP as the active theme, use the **Identify tool**  to find out more. This will bring up an Identify Results dialog box. At the bottom right corner, stretch the box so you can see all the information. This box reports the characteristics of each expedition segment. It tells you in that segment whether the explorers were “westbound,” eastbound,” or if they used the route for both. It also gives you the date they were on that section of the

trail. Lastly, it tells you who was in charge of the expedition: Lewis and Clark, Lewis, Clark, or Ordway.

21. So, some parts of the trail they used once, some twice. In some places they split up. In those areas where they split up, were they headed west or east?

_____

22. Lewis and Clark's general mission was to find a route from St. Louis to the Pacific Ocean. Although they were not always sure which way to go, they did arrive at the west coast and the trail stops.

    What are the names of the two westernmost sites in the LC_SITES.SHP?

_____

Of these two, at which site did Lewis and Clark spend the winter?

_____

**Not sure how to do this?** Try the following steps.

- Close the Identify Result dialog if it is still open.
- With LEWISCLA.SHP as the active theme, click the **Zoom to Active Theme button**  or click the **Zoom to Previous Extent button**  .
- In the **Table of Contents**, turn off USA.TIF, turn on the United States (near the bottom), and turn on LC_SITES.SHP.
- Make LC_SITES.SHP the active theme (click once on its name).
- Use the **Zoom In tool**  , to focus on the three sites near the Pacific Ocean.
- Use the **Identify tool**  to find out the names of the sites and other important information, like the winter location.

23. The area from which the expedition began was also its ending point, in and around St. Louis. Identify the date that Lewis and Clark arrived back in St. Louis.

_____

**Extension Exercise:** There is much more that can be investigated about the Lewis and Clark expedition. For instance, with the data currently in the ArcVoyager project, take a look at the expedition route in relationship to federal lands (such as forests and Native American reservations), geological hazards (volcanoes and faults), and the location of modern features (major cities, highways, and people). How densely populated are the counties near the trail? Where and what are the nearest big cities?

Feeling adventuresome? Add other layers. From the ArcVoyager data directory on your hard drive, add the **continental divide** and **highest point in each state** (\VOYAGER\DATA\GEO\US\ US48_DIV.SHP and USHIGH.SHP). For others on the *GIS for Schools & Libraries* CD-ROM, go to the **GISDATA** directory. Here, experiment with themes from the ELEV48, RIVERS, and TORNADOS directories.

## Lewis & Clark Expedition, 1804-1806:
## Background Information

**ESRI Schools and Libraries Program**
**Redlands, CA**


**http://www.esri.com/k-12**

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One sought-after type of GIS data is historical geographic data such as explorer routes, changing political boundaries, migration trails, battle sites, and the like. While GIS-using historians, archeologists, paleontologists, and similar researchers are creating some measure of historical data, these data are generally in limited supply since most users of GIS are focused on current-day geographies and characteristics.

It is, however, a fairly simple process to create your own historical point, line, and polygon data using the theme and data base creation and editing tools that are part of ArcView. Besides these ArcView tools, you also need source documents (maps, atlases, diaries, journals, books, etc.) that will provide the necessary locational story. Your challenge is to transfer that locational story to the GIS. To do this, you will need to build an ArcView project made up of relevant context-setting layers to act as drawing guides (e.g., location of current-day cities, landforms, elevation, rivers, etc.). For historical themes such as the Lewis and Clark data included here, watercourses were critical. Data from the EPA's BASINS program became the foundation for knowing the location of the various streams to which the historical source documents referred. With this type of layer as guide and mouse (or digitizing tablet) as drawing tool, theme creation becomes an exercise in tracing. Once theme components are drawn, the next effort is adding attributes (characteristics) to the data table you are creating at the same time. What data base intelligence do you wish to add to your geographic data (dates, place names, names of key persons, etc.)? Basically, what is it that you are trying to map and how do you want to use it? Also, be sure to provide documentation to the data you create.

The four ArcView shape files contained in this directory provide examples of historical data files that you can create. They represent a number of aspects of the Lewis & Clark Expedition and geographies with which they were contending. Together with other GIS layers, they can tell a story of the expedition and, more importantly, can provoke many questions about patterns, relationships, and human-environment interactions. The four layers are provided to you as geographic supplies. There is no ready-made project in this directory. You must create it.

Each of the four ArcView shape files is actually made up of "like-named" component files that work together. They represent the drawing component (.SHP), the attributes (.DBF), and index files (.SHX, .SBN, .SBX). When moving these or other ArcView shape files be sure to move all "like-named" files as a group. There is also a .TXT and .PDF file provided with each. These provide identical documentation.

The ArcView shape files in this directory are

| | |
|---|---|
| KEY_PASS.XXX | Key mountain passes |
| LA_PUR1.XXX | Boundary of the Louisiana Purchase, 1803 |
| LC_SITES.XXX | Key sites along the expedition route |
| LEWISCLA.XXX | Route of the Corps of Discovery |

## Expedition overview:

*"To Captain Meriwether Lewis:*

*The object of your mission is to explore the Missouri river, & such principal stream of it, as, by it's course and communication with the waters of the Pacific ocean, wether the Columbia, Oregon, Colorado or any other river may offer the most direct & practicable water communication across this continent for the purposes of commerce.*

*Thomas Jefferson June 20, 1803"*

The Lewis and Clark expedition, the Journey of the Corps of Discovery, represents a defining moment in United States and North American history. This expedition forever destroyed the myth of an easy east to west river-portage-river passage to the Pacific Ocean, a variation of the fabled Northwest Passage. It also changed the world's knowledge of geography, earth science, biology, cultures, and the extent of the world. The Corps of Discovery's successful round trip helped spark a new myth of westward expansion with a full range of positive and tragic consequences. The expedition's main protagonists, a scientist-geographer-president of the United States with a long-standing interest in the west and two military and scientific explorers, provided the mission and zeal and raw human endurance to see the quest to its successful end. In its course, the intrepid duo of Lewis and Clark and a cast of other significant characters became a well-tuned team that survived and surpassed threats, privations, and unknown geographies.

To find out details about their expedition and the nature of the continent at the time, explore some of the following resources:

Undaunted Courage, Stephen Ambrose
Lewis & Clark: The Journey of the Corps of Discovery, Dayton Duncan and Ken Burns
Atlas of Westward Expansion, Alan Wexler and Molly Braun
The Shaping of America—Continental America 1800-1867, D.W. Meinig.

Also visit the following web sites

| | |
|---|---|
| Lewis & Clark Education Center | http://www.lewisandclarkeducationcenter.com |
| Lewis & Clark Trail Heritage Foundation | http://www.lewisandclark.org |
| Discovering Lewis & Clark | http://www.lewis-clark.org |
| PBS Online: Lewis & Clark | http://www.pbs.org/lewisandclark/ |

Note: For a "movie" of the journey, there is an animated GIF of the expedition (CORPSANI.GIF) found on the ESRI *GIS for Schools and Libraries* CD (available at http://www.esri.com/industries/k-12/k-12form.html). It shows in movie form a series of screenshots depicting the westbound and eastbound routes of the expedition as well as some key sites along the way. To view it, use a Web browser that supports animated GIFs (e.g., Netscape Navigator 3.x, Microsoft Internet Explorer 3.x). Open it as a local file. It will take a few moments to load. Once started, it will cycle continuously.

KEY_PASS.SHP
Lewis & Clark Expedition:
Key Mountain Passes, 1804-1806

ESRI Schools and Libraries Program
Redlands, CA

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Overview:
This geographic data file presents point data for 5 key mountain passes on the Lewis & Clark's expedition route. These reflect important locations as well as sites where key expedition events occurred.

Projection:
Decimal degree.

Scale:
It is recommended that this data file be used at scale no lower than 1:2,000,000.

Source:
ESRI staff researched the locational information for this shape file using a number of books, maps, and related documents. Principal among these were: Undaunted Courage, Stephen Ambrose; Lewis & Clark: The Journey of the Corps of Discovery, Dayton Duncan and Ken Burns; Atlas of Westward Expansion, Alan Wexler and Molly Braun; and The Shaping of America—Continental America 1800-1867, D.W. Meinig.

ESRI staff then used the USGS' Geographic Names Information System (GNIS) to retrieve the necessary coordinate data and ultimately fashion this historical shape file.

To map this data item with ArcView:

1. At the PROJECT window, open a NEW VIEW or use an existing VIEW in your project.
2. In the VIEW, click the ADD THEME button.
3. In the subsequent window, navigate to where the KEY_PASS.SHP file is located; click OK.
4. Click the checkbox next to the theme name KEY_PASS.SHP in your view.
5. If you began with a NEW VIEW, add other themes to provide a North American context to our display. For instance, using the ArcVoyager data, click the ADD THEME button, navigate to VOYAGER\DATA\GEO\NAMERICA directory, and select Canadian Provinces (CANADA.SHP) and Mexican states (MEXICO.SHP) and from VOYAGER\DATA\ GEO\US select U.S. states (US_STATE.SHP). Add other layers to build on the story such as rivers, lakes, cities, and other supportive layers.
6. Use the LEGEND EDITOR to reclassify the data.

Fields Names:

| | |
|---|---|
| SHAPE | Describes vector shape as point, line, or polygon. |
| COUNTYNAME | Name of the county or counties in which the pass occurs. |
| ELEVATION | Elevation of the pass in feet. |
| QUADNAME | Name of USGS quad sheet on which to find the pass. |
| NAME | Name of pass. |
| QUADREF | USGS reference number to help locate the pass on a quad sheet. |
| STATE | Name(s) of state(s) in which the pass is located. |
| GNIS_TYPE | USGS Geographic Names Information System (GNIS) code for this type of feature. |
| LATITUDE | Latitude in decimal degrees. |
| LONGITUDE | Longitude in decimal degrees. |

LA_PUR1.SHP
Lewis & Clark Expedition:
Boundaries of the Louisiana Purchase, 1803

ESRI Schools and Libraries Program
Redlands, CA

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Overview:
This geographic data file presents polygon data for the boundaries of the Louisiana Purchase of 1803. Its purchase became the final catalyst in launching Thomas Jefferson's long-held dream of a major expedition of the American west.

Projection:
Decimal degree.

Scale:
It is recommended that this data file be used at scale no lower than 1:2,000,000.

Source:
ESRI staff researched the locational information for this shape file using a number of books, maps, and related documents. Principal among these were: Undaunted Courage, Stephen Ambrose; Lewis & Clark: The Journey of the Corps of Discovery, Dayton Duncan and Ken Burns; Atlas of Westward Expansion, Alan Wexler and Molly Braun; and The Shaping of America—Continental America 1800-1867, D.W. Meinig.

With these as sources and other vector layers (principally river/stream and watershed data from the EPA's BASINS program) as indicators and guides, ESRI staff used ArcView's theme creation and editing tools to fashion this historical shape file.

To map this data item with ArcView:

1. At the PROJECT window, open a NEW VIEW or use an existing VIEW in your project.
2. In the VIEW, click the ADD THEME button.
3. In the subsequent window, navigate to where the LA_PUR1.SHP file is located; click OK.
4. Click the checkbox next to the theme name LA_PUR1.SHP in your view.
5. If you began with a NEW VIEW, add other themes to provide a North American context to our display. For instance, using the ArcVoyager data, click the ADD THEME button, navigate to VOYAGER\DATA\GEO\NAMERICA directory, and select Canadian Provinces (CANADA.SHP) and Mexican states (MEXICO.SHP) and from VOYAGER\DATA\ GEO\US select U.S. states (US_STATE.SHP). Add other layers to build on the story such as rivers, lakes, cities, and other supportive layers.
6. Use the LEGEND EDITOR to reclassify the data.

Fields Names:

| | |
|---|---|
| SHAPE | Describes vector shape as point, line, or polygon. |
| NAME | Name of the region. |

LCSITES.SHP
Lewis & Clark Expedition:
Key Westbound & Eastbound Sites, 1804-1806

ESRI Schools and Libraries Program
Redlands, CA

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Overview:
This geographic data file presents point data for 35 key sites along Lewis & Clark's expedition route. These reflect important starting and stopping locations as well as sites where key expedition events occurred.

Projection:
Decimal degree.

Scale:
It is recommended that this data file be used at scale no lower than 1:2,000,000.

Source:
ESRI staff researched the locational information for this shape file using a number of books, maps, and related documents. Principal among these were: Undaunted Courage, Stephen Ambrose; Lewis & Clark: The Journey of the Corps of Discovery, Dayton Duncan and Ken Burns; Atlas of Westward Expansion, Alan Wexler and Molly Braun; and The Shaping of America—Continental America 1800-1867, D.W. Meinig.

With these as sources and other vector layers (principally river and stream data from the EPA's BASINS program) as indicators and guides, ESRI staff used ArcView's theme creation and editing tools to fashion this historical shape file.

To map this data item with ArcView:

1. At the PROJECT window, open a NEW VIEW or use an existing VIEW in your project.
2. In the VIEW, click the ADD THEME button.
3. In the subsequent window, navigate to where the LCSITES.SHP file is located; click OK.
4. Click the checkbox next to the theme name LCSITES.SHP in your view.
5. If you began with a NEW VIEW, add other themes to provide a North American context to your display. For instance, using the ArcVoyager data, click the ADD THEME button, navigate to VOYAGER\DATA\GEO\NAMERICA directory, and select Canadian Provinces (CANADA.SHP) and Mexican states (MEXICO.SHP) and from VOYAGER\DATA\ GEO\US select U.S. states (US_STATE.SHP). Add other layers to build on the story such as rivers, lakes, cities, and other supportive layers.
6. Use the LEGEND EDITOR to reclassify the data.

Fields Names:

| | |
|---|---|
| SHAPE | Describes vector shape as point, line, or polygon. |
| AREANAME | Describes basic name of location. |
| STATE | Name of present-day state in which point is located. |
| SITE_NUM | Sequential number for each unique site. |
| ARCLINK | Descriptive name associated with each site for possible use with hot linked image and text files. |
| LAT | Latitude in decimal degrees. |
| LONG | Longitude in decimal degrees. |
| WEST_ARR | Date or approximate date on which the Corps of Discovery arrived at this site in its westbound expedition. |
| WEST_DEP | Date or approximate date on which the Corps of Discovery departed from this site in its westbound expedition. |
| EAST_ARR | Date or approximate date on which the Corps of Discovery arrived at this site in its eastbound expedition. |
| EAST_DEP | Date or approximate date on which the Corps of Discovery departed from this site in its eastbound expedition. |

LEWISCLA.SHP
Lewis & Clark Expedition:
Route of the Corps of Discovery, 1804-1806

ESRI Schools and Libraries Program
Redlands, CA

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Overview:
This geographic data file presents line data for 31 segments of the Lewis & Clark's expedition route. These reflect important starting and stopping locations as well as sites where key expedition events occurred.

Projection:
Decimal degree.

Scale:
It is recommended that this data file be used at scale no lower than 1:2,000,000.

Source:
ESRI staff researched the locational information for this shape file using a number of books, maps, and related documents. Principal among these were: Undaunted Courage, Stephen Ambrose; Lewis & Clark: The Journey of the Corps of Discovery, Dayton Duncan and Ken Burns; Atlas of Westward Expansion, Alan Wexler and Molly Braun; and The Shaping of America—Continental America 1800-1867, D.W. Meinig.

With these as sources and other vector layers (principally river and stream data from the EPA's BASINS program) as indicators and guides, ESRI staff used ArcView's theme creation and editing tools to fashion this historical shape file.

To map this data item with ArcView:

1. At the PROJECT window, open a NEW VIEW or use an existing VIEW in your project.
2. In the VIEW, click the ADD THEME button.
3. In the subsequent window, navigate to where the LEWISCLA.SHP file is located; click OK.
4. Click the checkbox next to the theme name LEWISCLA.SHP in your view.
5. If you began with a NEW VIEW, add other themes to provide a North American context to our display. For instance, using the ArcVoyager data, click the ADD THEME button, navigate to VOYAGER\DATA\GEO\NAMERICA directory, and select Canadian Provinces (CANADA.SHP) and Mexican states (MEXICO.SHP) and from VOYAGER\DATA\ GEO\US select U.S. states (US_STATE.SHP). Add other layers to build on the story such as rivers, lakes, cities, and other supportive layers.
6. Use the LEGEND EDITOR to reclassify the data.

Fields Names:

| | |
|---|---|
| SHAPE | Describes vector shape as point, line, or polygon. |
| EXPED_NUM | Identifies the expedition segment number, which runs in sequential order to the west coast. The return route splinters as Lewis and Clark decide to explore new lands. Also, the Corps retraces its steps along major segments of the route. For these reasons, the expedition segment numbers can not provide a sequential west to east flow. |
| EXPED_SEG | Names the expedition segment, generally with a starting and ending point reading from east to west. Since a good number of segments are both westbound and eastbound, in eastbound situations the expedition segment names should be read from right to left. |
| WESTBOUND | Identifies this segment as a westbound segment YES or NO. |
| WEST_DA | Dates or approximate dates on which the Corps of Discovery explored this area in its westbound expedition. |
| WEST_XPL | Identifies commanding members of the Corps of Discovery associated with this westbound expedition segment. |
| EASTBOUND | Identifies this segment as an eastbound segment YES or NO. |
| EAST_DATE | Dates or approximate dates on which the Corps of Discovery explored this area in its eastbound expedition. |
| EAST_XPLOR | Identifies commanding members of the Corps of Discovery associated with this eastbound expedition segment. |