An Ethnographic Study Identifying the Core Knowledge of Horse and Mule Packing as Perceived by Experienced Packers in the Intermountain Region of the United States National Park Service

by

Deliverance Kochanowski

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Dr. Michael Galloy

The Graduate School

University of Wisconsin-Stout

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The Graduate School
University of Wisconsin-Stout
Menomonie, WI

Author: Kochanowski, Deliverance

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Abstract

The Intermountain Region of the National Park Service is currently experiencing a brain drain, because the aging, experienced packers are leaving without putting their knowledge and experience into writing. This study identified the core knowledge related to: safety, stock confirmation attributes, packing techniques, equipment, and recruitment/training of novice packers. The information in this study was gotten by interviewing experienced packers throughout the Intermountain Region. Packers in each sub-region have unique packing styles, yet the basic form of packing transcends sub-regions. The core knowledge identified in this study is the first step in the process of transforming the, mostly oral, art of packing into written curricula.

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Chapter I: Introduction

Many regions of the world are inaccessible and inhospitable to extended human activities. These regions yield beauty, serenity, and strategic advantage. The beauty and serenity in these remote regions allow humans to reconnect and appreciate nature. For the military, it provides advantages for waging war (Back, 1958). Horses and mules, loaded with goods through the art of packing, make these regions accessible to humans for both wonderment and war. Through the ages packing has evolved and has been passed down from expert to novice in an oral tradition (Back, 1958).

Early nomadic humans needed to transport their encampments to follow food sources. That transportation includes mules and horses. The domestication of the horse allowed a 150 pound human to pack 300 pounds of cargo for great distances. Genghis Khan demonstrated the dexterity of the pack horse in the rise of his empire (Back, 1958). Packing allowed Genghis Kahn to be a self-contained, mobile war machine that was much faster than his opponents. The fundamentals of packing have not changed much over the centuries. However, packing varies greatly and is dependent on region, organization, and type of cargo being packed (Back, 1958). The core knowledge of packing has yet to be clearly identified in writing (K. Elsisie, personal communication, February 12, 2009).

Packing is the art of combining humans, horses, hitches, and cargo (Back, 1958). Packers use rope, canvas, and panniers to make evenly distributed loads (Elser & Brown,1980). Panniers are suitcase type containers used to hold cargo. Hitches, intricate knots used to secure cargo, are used to tie loads to the pack saddle. A pack saddle has arched rings or wooden bars, perpendicular to the horse, that are hard points to which the hitches are tied. Pack saddles can be worn by a horse or mule (Hoverson, 2005).

There are three types of packing: Department of Defense (DOD), outfitting, and federal pack stations. The DOD packing operation has been used in every major military engagement in which the the United States fought, up to and including Afghanistan (K. Elsisie, personal communication, February 12, 2009). Military packing primarily focuses on moving war material to forward positions on mules. Military packing differs from the other types of packing by packing heavier loads for combat environments. Military packers use strings which are groups of packed horses or mules tied together one in front of the other. A string can number up to 15 animals and are lead by soldiers on foot (Hauer, 2005).

Outfitting is packing for tourists, primarily sportsmen. Outfitters often are hunting guides that pack client's personal gear and wild game (Back, 1958). Individual outfitters have fewer animals than pack stations or military pack strings because of the size of their operations. Many of the federal pack station packers are outfitters during the hunting season. Collectively, outfitters employee the most pack animals and packers (Gebhards, 2000).

Federal pack station packing is carried out by the following federal agencies: US Forest Service (USFS), National Park Service (NPS), US Postal Service (USPS), and the Bureau of Land Management (BLM). Pack station packers pack the widest variety of cargo ranging from food to fire hoses (National Park Service [NPS], 2008). Their primary mission is to supply trail crews that maintain hiking trails in public lands within their home agencies. Occasionally federal pack stations will also pack for other federal agencies (Baker, 2008).

Packing methodologies and techniques vary depending on the type of packing and region. Teaching the art of packing to others currently relies on packing's oral tradition (Elser & Brown, 1980). Packing is passed on from master to novice. A master packer chooses his successor and trains him or her in the art of packing. Training a packer takes multiple seasons and there are

still parts of the job that the aspiring packer will have to learn for themselves (K. Elsisie, personal communication, February 12, 2009). There are a limited number of written resources available with regard to packing. Packing books tend to specialize in one area of packing, for instance Bob Hoverson's book, *The Packer's Field Manual*, is specific to the Decker style of packing. Most packing books cover one style of packing, some cover two, and none cover all three types of packing. The majority of current packers tend to be older and many quit when they are unable to perform their duties. The aging of expert packers compounds the passing-on of essential knowledge, skills, and techniques used in the packing field.

Statement of the Problem

The art of packing is at risk of being lost forever if its core knowledge is not captured and documented. Specifically, what criteria is used to determine how to package the loads and what hitches are appropriate for each type of load. Additionally, what techniques do packers use to keep their strings traveling smoothly without incident.

Purpose of the Study

The purpose of this study is to identify the core knowledge of horse and mule packing within the Intermountain Region of the NPS. Identifying the core knowledge of packing would enable the packing community to create a universal manual and establish a national professional organization. The creation of such an organization could have far reaching effects such as, refresher training, representation at the national level, and an accredited packing degree.

Research Questions

This study will identify the core knowledge related to packing using five research questions:

1. What safety related core information is needed to pack horses and mules in a safe manner that will mitigate the risk of damage or death to humans, horses, and/or cargo?

2. What are favorable pack stock (horses and mules) characteristics and conformational attributes that are used by experienced packers to select stock for purchase?

3. What techniques are used in: cargoing, slinging loads, and leading stock up trails?

4. What equipment is fundamental and essential to the trade of packing?

5. How are novice packers recruited and trained?

Significance of the Study

This study is important for the following reasons:

1. Packing allows humans to connect and be in harmony with nature in a way that is not otherwise possible. Backpacking, for example, does not include a horse. When a human and a horse are in concert with nature it is difficult to distinguish where the horse ends and the human begins. It can be a humbling experience when humans interact, in harmony, with nature and its creatures.

2. This study will identify five areas relating to the core knowledge of packing. Each area of core knowledge requires individual inquiry to ensure there are not any gaps in knowledge. Each of the identified five areas of packing are interdependent, yet each area has its own characteristics and steadfast rules.

3. The findings of this research will culminate with a written document that will identify the core knowledge of packing related to the five research question.

Limitations of the Study

This research has the following limitations:

1. This study is limited to a minute segment of experienced packers in the United States.

2. The validity of the core knowledge data collection is dependent on the effectiveness of the packer to interpret interview questions. Furthermore, the researcher is in Wisconsin while the packing takes place in the Western United States.

3. The interview instrument will consist of the five core knowledge questions. The instrument reliability is dependent on the novice researcher's ability to synthesize the information gotten from the interviews.

4. The validity of objectivity is dependent on the researcher not revealing personal preference or packing incite. The researcher has been trained in the use of the Decker packing style and is likely to unintentionally promote this packing style.

5. The results of this study are limited to the Intermountain Region and are not generalizeable.

Definition of Terms

Core knowledge. The best practices of packing identified by experienced packers.

Packer. An individual that uses horses or mules to transport cargo to remote locations (NPS, 2008).

Experienced packer. A packer is someone that possesses four of the five following: 1. A packer is a person who's primary source of income is from packing. 2. A packer that has been in the profession for a minimum of 10 years. 3. A packer that has been trained in the art of packing. 4. A packer that has had at least two pack sting related wrecks. 5. A packer that has been in charge of and trained other packers (Baker, 2008).

Manty. A rectangular piece of canvas used to wrap cargo (Hill, 2005).

Lash rope. A fifty foot piece of rope used to secure cargo to a pack saddle (Post, 1914).

Utah bag. An open toped canvas bag used to carry cargo primarily used with Saw Buck pack saddles (Back, 1958).

Chapter II: Literature Review

The purpose of this ethnographic study is to identify the core knowledge of packing from experienced packers in the Intermountain Region of the National Park Service (NPS). The review of literature is the foundation of the inquiry into the core knowledge of packing that in later chapters is fortified by interviews from experts in the field.

This review of literature identifies packing core knowledge related to safety, horsemanship, equipment, and training that are published. The core knowledge is identified in the Intermountain Region of the NPS.

The study uses a two pronged approach; current published works, and interviews. Moreover, the foundation garnered from books are further explored and validated by interviewing. This study selected and interviewed experienced packers from the Intermountain Region of the NPS. The interviews build on the foundation found in printed sources and lays the ground work for writing the core knowledge of packing.

Packing has a strong oral tradition and few packers put their experiences into writing. Stacy Gebhards describes the tradition by saying "Although there are basic techniques and gear, packing horses and mules is an art form and every artist has their way of doing things" (Gebhards, 2000, p.1). This study uses the limited printed resources on packing to create a foundation of core knowledge in safety, training, and tools and equipment.

Safety

Packing is an innately dangerous job, because horses and mules have their own brains. Packing safety is broken down into three categories: human, horse, and cargo. Each region has specific safety issues, yet most packing safety has elements that are steadfast.

Packing safety is characterized by Bob Hoverson (2005), a 30 year veteran of packing, as a calculated endeavor in which every move must have a rational reason for safety. For instance, the reason a packer should face the head of the horse or mule when cinching is to prevent the packer from loosing teeth if the horse of mule kicks (Gerhards, 2000). Human safety when packing is the first concern. That being said, most accidents are caused by humans and are preventable. Planning ahead and staying in front of the string can prevent accidents (Back, 1958). The demarcation between animal and human becomes very blurred especially in safety. Many times when a packer is in danger he consequently puts the string in danger as well (Elser & Brown, 1980).

Pack stock and cargo safety are nearly inseparable. If the pack animal is acting in an unsafe manner many times the cargo pays the price (Gerhards, 2000). If a trail is too narrow and the packer is leading the string too fast (putting the string in an unsafe situation) some member of the string will snag their load on a tree branch. If the packer in the fore-mentioned scenario is lucky no damage will occur. However, the single snag of a tree branch could send the entire string into a panic and a rodeo would ensue resulting in damaged cargo and loose mules to round up. The old adage "an ounce of prevention is worth a pound of cure" holds true with cargo safety. Damaging cargo is expected in packing, but the degree of damage is determined by the skill of the packer (Back, 1958). Packing cargo is quite similar to packing a lunch sack only on a larger scale. Delicate items are protected and wrapped to prevent crushing or damage (Hoverson, 2005). Canvas, sleeping bags, and newspaper are often used to pad fragile cargo.

Training

Horsemanship is everything associated with riding and maintaining horses and mules. Packing is 80% horsemanship and 20% packing (Back, 1958). The majority of packing is

horsemanship which specifically includes positioning a mount and a string in a desired position at a desired time.

Horsemanship starts with the attitude that the packer and string are a team that triumphs or fails together (Elser & Brown, 1980). Horses and mules are prey animals and they see humans as a predator (Hoverson, 2005). Packers need to bond with their horses and mules in order to gain their trust, so both predator and prey can work together. Approaching a horse or mule is accomplished in the same way, slowly and non-aggressively from the front (Gebhards, 2000). Mules are more difficult to train and ride than horses are due to their superior intelligence (Hauer, 2005). Mules have the bad reputation of being stubborn. However, in reality mules appear stubborn because they are resisting a human's request to endanger themselves.

Tools and Equipment

Horsemanship, like any skill, has its associated equipment. Horses and mules wear specifically fitted shoes to protect their feet and increase traction (Elser & Brown, 1980). Shoeing horses and mules should only done by competent shoeing persons. Mules and horse are only as good as their shoes and backs (Back, 1958). If shoes are put on wrong lameness or death could result.

Packers have their own horsemanship equipment that includes spurs, bridles, and chaps (Gebherds, 2000). Spurs, when used correctly, are a wonderful training aid; however if they are used incorrectly they can be counterproductive. A bridle is comparable to the steering wheel in a car, it allows a rider to steer the horse (Elser & Brown, 1980). Like cars, bridles come in all shapes and sizes and the packer must discover what bridle he or she prefers. Back (1958) emphasizes the utility of chaps by stating they can be used for many purposes (i.e., waterproofing, warmth, thorn armor, and chafing prevention).

Summary

This chapter summarized the core knowledge elements of safety, training, tools and equipment associated with packing. The safety component of packing boils down to how well a packer and a string work together, while training emphasizes the physical and mental conditioning of both the human and animal. All packing tools and equipment have a specific purpose and use. The next chapter, Methodology, will identify the methods by which this study will be accomplished.

Chapter III: Methodology

The core knowledge identified in this ethnographic study will add to the extremely limited supply of written documentation on the trade of packing. Packing has an oral tradition that is passed on via a mentor-mentee manner. The art and science of packing is at risk of disappearing if its core knowledge is not identified and put into written form.

This study identified the core knowledge of packing by using the following five fundamental questions that encompass key aspects of the trade:

1. What safety related core information is needed to pack horses and mules in a safe manner that will mitigate the risk of damage or death to humans, horses, and cargo?
2. What are favorable pack stock (horses and mules) characteristics and conformational attributes that are used by experienced packers to select stock for purchase?
3. What techniques are used in cargoing, slinging loads, and leading stock up trails?
4. What equipment is fundamental and essential to the trade of packing?
5. How are novice packers recruited and trained?

Research Design

This was an ethnographic study. Ethnographic research is exploratory and involves the researcher directly observing or participating in the area being studied. This study collected narratives from experienced packers about the core knowledge of packing. Packing and the nature of packers dictated that this study would be ethnographic. In general, packers are not keen on filling out paper work, hence written surveys would have yielded poor results. Furthermore, this ethnographic study picked up on minute details that differentiate packers that would have otherwise been missed. Moreover, the jargon of packing would have greatly hampered any written type of research collection. Specifically, nearly all the associated tools

and equipment of packing have at least two names. For instance, a manty has the following names: manta, mantey, cover, and canvas. Therefore, creating a document that included every tool and equipment name variation would have been futile.

Population and Sample

The population used in the study was experienced packers in the Intermountain Region of the National Park Service (NPS). Experienced packers were further categorized by geographical region. The study divided the Intermountain Region into three sub-regions: Northern, Central, and Southern.

The sample used in the study encompassed all three sub-regions of packing in the Intermountain Region of the NPS. The Northern sub-region was represented by NPS packers in Montana and Wyoming. The Central sub-region was represented by packers in Colorado and New Mexico. The Southern sub-region was represented by packers in Texas and Arizona.

The sample selection process used in the study is such that all three sub-regions were represented by experienced packers. The sample population was selected by identifying the head packer in each park.

Instrumentation

This study was conducted by telephone interviews. The protocol for the interview including asking the expert packer the five research questions in order to get his or her interpretation of the core knowledge of packing.

Each question was asked in the same manner and in the same order to every packer to prevent bias of opinion. The interview questions were stated in an open-ended manner which allowed the expert packer latitude in answering. If needed, the interviewer rephrased questions until each question was understood and answered fully by the experienced packer.

Data Collection

The data collection procedure was transcription of the telephone interviews. The transcription was accomplished during the interview by documenting key concepts related to each research question. The transcription process was executed by typing the responses to the research questions, and by clarifying with the packer as needed during the interview. The interviewer read back the answers to the packer to ensure the information was accurate and that no pertinent information was left out.

Data Analysis

The study analyzed the data by categorizing the answers to each research question with regard to the sub-regions (i.e., North, Central, or Southern). Further analysis identified salient themes represented in the expert packers' narratives that transcended sub-regions.

Chapter IV: Results

The purpose of this ethnographic study was to identify the core knowledge of packing in the Intermountain Region of the National Park Service (NPS). The study was accomplished using telephone interviews to capture the responses of expert packers pertaining to the five research questions. The data collected in the telephone interviews was analyzed and synthesized into a written document indentifying the core knowledge of packing.

Research Questions

1. What safety related core information is needed to pack horses and mules in a safe manner that will mitigate the risk of damage or death to humans, horses, and cargo?
2. What are favorable pack stock (horses and mules) characteristics and conformational attributes that are used by experienced packers to select stock for purchase?
3. What equipment is fundamental and essential to the trade of packing?
4. What techniques are used in: cargoing, slinging loads, and leading stock up trails?
5. How are novice packers recruited and trained?

Population and Sample

The population used in the study was experienced packers in the Intermountain Region of NPS. Experienced packers will be further categorized by geographical sub-region. The study broke down the Intermountain Region into three sub-regions: Northern, Central, and Southern. The demographic composition of the sample was Caucasian males all over the age of 45 who grew up in the lower middle class, and have high school educations. The packers' training was acquired via a mentor/ mentee style of instruction. For the purpose of privacy, this study identified packers by the sub-region (Northern, Central, or Southern sub-region of the NPS's Intermountain Region) they work in rather than by their names.

Research Question One

The first research question pertained to packing safety. It asked what safety related core knowledge is needed to pack horses and mules in a safe manner that mitigates the risk of damage or death to humans, horses, and cargo. The question was asked to packers in all three sub-regions of the NPS's Intermountain Region. All three sub-regions of the Intermountain Region prioritized safety in the following manner: human, animal, then cargo. Therefore, this section is divided into human safety, animal safety, and cargo safety.

Human safety. Packers from all three sub-regions stressed the need for packers to be in good physical condition year round. One of the packers related that he does pushup and sit-ups every morning to keep in shape. Another packer does pull-ups on the back of the trailer when he is waiting to load animals. The packers within the Central sub-region are afforded work time to maintain physical conditioning, while the packers in the Northern and Southern sub-regions are expected to maintain their physical conditioning outside of work. Collectively, the packers conveyed that packing is physically demanding and that staying in shape prevents many human injuries.

The two main safety controls identified were written standards and personal protective equipment (PPE). The Central sub-region developed a Stock Management Plan in 2008. This plan outlines policies and procedures associated with packing (i.e., duties and responsibilities, training requirements, livestock procurement, livestock monitoring and care, and livestock disposal). Neither the Northern nor Southern sub-region have written stock standards. For the most part, PPE in the three sub-regions align with everyday cowboy gear and geographic conditions. Everyday cowboy gear includes: hat, chaps, gloves, boots, and rain slickers. The

Northern and Central sub-region packers wear this PPE for its safety characteristics along with its warmth, while the Southern sub-region wears PPE solely for protection.

Animal safety. The horses and mules used in the Intermountain Region play a huge role in Packer safety and animal safety is founded on the premise that the animals are living, working, tools, and need to be treated as such. Three themes were identified with regard to animal safety. They were: reliable stock, not putting animals into dangerous situations, and husbandry. Packers in all the sub-regions stressed the need for calm, reliable, seasoned stock. Animal safety is greatly determined by the packer and consequently, the packer must not put the animal in situations where it can get hurt. The final component of animal safety, that all three sub-regions use, is proactive animal husbandry, such as nutrition, shoeing, and immunization. The Central sub-region is unique in that they do not shoe their own stock. The other two sub-regions require the packers to shoe their own animals.

Cargo safety. Cargo safety among the three sub-regions identified load planning, animal ability, and being actively engaged in leading a pack string to be key cargo safety elements. All sub-regions stressed the importance of protecting and arranging cargo to ensure it safely arrives at the destination undamaged. For example, heavy items are centered and positioned towards the bottom of the load, while light fragile items are on the inside (near the animal) and towards the top of the load. Fragile items are often padded with other cargo such as a sleeping bag or newspaper. These loads are then placed on the pack animals based on the animal's physical ability and temperament. Finally, packers from all three sub-regions agreed that leading the pack string in a safe and steady pace is the best way to prevent cargo damage. Moreover, this enables the string ample time to maneuver around obstacles that may damage cargo.

Research Question Two

The second research question pertained to stock confirmation and temperament. It asked what are favorable pack stock characteristics and conformational attributes that are used by experienced packers to select stock. A pack operation is only as good as its stock (Back, 1958). Without horses and mules, packing would not be possible. Selecting the appropriate stock can make or break an operation. Words used to describe favorable pack stock characteristics, by the three sub-regions, were: calm, soft eyes, leadership ability, amiable, and patient.
The sub-regions collectively identified height, weight, and age to be three preferable conformational attributes. The Central sub-region's Stock Management Plan dictates that animals are to be between 14 hands two inches and 16 hands three inches, weigh between 900 and 1300 pounds, and are three to seven years of age upon purchase. In the North the animals are taller and weigh more, while in the South, due to their preference for riding mules, the animals are shorter, weigh less, and are older.

Research Question Three

The third question related to the equipment of the trade. It asked what equipment is fundamental and essential to the trade of packing. Pack saddles, ropes, and cargo carriers were identified as the essential tools of the trade.

Pack saddles. The Decker and Sawbuck pack saddles are the two types of saddles used to pack with in the Intermountain Region. The Northern and Central sub-regions exclusively use the Decker pack saddle, while the Southern sub-region uses both Decker and Sawbuck pack saddles.

Ropes. Sling ropes, lash ropes, and manty ropes are the three types of ropes used in the Intermountain Region. The Northern and Southern sub-regions use seven-sixteenth inch

diameter, multi-strand sling ropes that are 30 to 35 feet long. The Central sub-region uses the same type of rope, but in a thicker diameter of one-half inch. With regard to lash ropes, only the Southern sub-region uses them for everyday packing. The other two sub-regions use lash ropes for parades and other show-type events. When all three sub-regions purchase manty ropes they purchase ropes that are three-eighths inch diameter, but manty ropes are sometimes old, reclaimed sling or lash ropes.

Cargo carriers. Cargo carriers in the Intermountain Region include: Utah bags, hard and soft panniers, mantys, dirt bags, coolers, duffels, and custom containers. All of the sub-regions use all the fore mentioned carriers. The sub-regions only differ in that the Southern sub-region prefers Utah bags to panniers and that the custom carriers are job specific.

Research Question Four

The fourth research question related to cargoing and leading techniques. It asked what techniques are used in cargoing, slinging loads, and leading stock up trail.

Cargoing techniques. Three cargo techniques were identified as load planning, cargo container preference, and supplemental load restraint. All three sub-regions load plan cargo in the same manner (i.e., fragile, light, expensive items are loaded above heavy durable items). The sub-regions load hand tools in a similar manner with handles sticking out of the rear of load. However, every sub-region has unique cargo that dictates special load planning. For example, the Central sub-region routinely packs fish researcher equipment such as inflated boats, batteries, trolling motors, fish shockers, and nets.

Cargo container preference yields itself to the type of pack saddle used in the sub-region. The Southern sub-region uses Utah bags and mantys, which matches the Sawbuck pack saddle.

The other two regions prefer panniers because the panniers are more conducive to Decker pack saddles.

All three sub-regions use manty ropes to provide supplemental load restraint. For the Northern and Central sub-region supplemental restraint is often used to cinch duffel bag loads tight. Supplemental restraint is also used throughout the Intermountain Region to secure cargo from rattling and thus spooking the string.

Slinging loads. Many hitches are used to secure cargo to pack saddles in the Intermountain Region. The hitches are: Squaw, Box, Single Diamond, Double Diamond, Barrel, Basket, Crow's Foot, Christianson, and Decker Diamond. The Southern sub-region predominantly uses Squaw, Box, Single Diamond, and Double Diamond hitches because they require a lash rope.

Leading stock. Pace, stopping, and obstacles were identified as key components to effectively leading pack strings within the Intermountain Region. Keeping the string moving at a fast walk of about four miles per hour keeps the animals focused on their job and out of mischief. Stopping the string consists of turning the animal, that the packer is riding, perpendicular to the pack string. When navigating obstacles with a pack string, the packer must allow adequate time and space for every animal in the string to navigate the obstacle. The time and space needed for each animal varies based on the animal's position in the pack string.

Research Question Five

The fifth question related to the recruitment and training of packers. It asked how are novice packers recruited and trained. The recruitment of novice packers is happen-stance because there is no formal, active recruitment. The NPS simply posts novice animal packer positions on a federal job listing website. The application process is extensive and rarely yields

many qualified applicants. The training of novice packers consists of a mentor/mentee relationship where an expert packer trains the mentee, over years, in the art of packing. When money is available, packers from the Central sub-region are sent to a two-week long Forest Service packing school.

Chapter V: Summary, Conclusions, and Recommendations

Summary

The core knowledge identified in this ethnographic study has added to the extremely limited supply of written documentation of the trade of packing. Packing has an oral tradition and is passed on via a mentor/mentee manor. Packing is at risk of disappearing if its core knowledge is not identified, and put into written form.

This study identified the core knowledge of packing by using the following five research questions that encompass key aspects of the trade.

1. What safety related core information is needed to pack horses and mules in a safe manner that will mitigate the risk of damage or death to: humans, horses, and cargo?
2. What are favorable pack stock (horses and mules) characteristics and conformational attributes that are used by experienced packers to select stock for purchase?
3. What equipment is fundamental and essential to the trade of packing?
4. What techniques are used in: cargoing, slinging loads, and leading stock up trails?
5. How are novice packers recruited and trained?

The population used in the study was experienced packers in the Intermountain Region of National Park Service (NPS). Experienced packers were further categorized by geographical sub-region. The study broke down the Intermountain Region into three sub-regions: Northern, Central, and Southern.

This study was conducted by telephone interviews. The protocol for the interview including asking the expert packer the five research questions, in order, to get his or her interpretation of the core knowledge of packing.

The demographic composition of the sample was Caucasian males all over the age of 45 who grew up in the lower middle class, and have high school educations. The packers' training was acquired via a mentor/mentee style of instruction. For the purpose of privacy, this study identified packers by the sub-region (Northern, Central, or Southern sub-region of the NPS's Intermountain Region) they work in rather than by their names.

Major Findings and Conclusions

This section is organized by the five research questions. Major findings are listed in bullet format followed by conclusions drawn from the research.

Research question one: What safety related core information is needed to pack horses and mules in a safe manner that will mitigate the risk of damage or death to: humans, horses, and cargo?

Human safety.

- Maintaining year round good physical condition was identified by packers in all the sub-regions as a way to prevent packer injuries.
- Packers focused their energy on anaerobic exercise in order to keep themselves fit..
- Only the Central sub-region allows packers to use paid work time to keep physically fit.
- The Central sub-region has a written Stock Management Plan that identifies packing standards for all packing stock used in the sub-region.
- Personal protective equipment (PPE) in the three sub-regions align with everyday cowboy gear and geographic conditions.

The data gathered to address this research question indicates that packers in the Intermountain Region are lacking cardiovascular exercise. The physical effort required for packing is more about lifting and pulling than running. The knowledge of packing PPE is not at

risk of being lost because it is widely used by cowboys throughout the West. The lack of an Intermountain Region Stock Management plan is exposing packers in the Southern and Northern sub-regions to unnecessary risk.

Animal safety.

- The Central sub-region does not shoe their own stock.
- Packers in all three sub-regions expressed the needed for calm, reliable, seasoned stock.
- Intermountain Region packers strive to keep their stock out of dangerous situations.

Packers in the Northern and Southern sub-regions are exposing their stock to risk by not having a professionals shoe their horses. Packers in the Intermountain Region share the common view of proactive horsemanship which keeps their stock safe.

Cargo safety.

- Packers in the Intermountain Region packers from all three sub-regions agreed that leading the pack string in a safe and steady pace is the best way to prevent cargo damage.
- Loads are placed on the pack animals based on the animal's physical ability and temperament.
- Heavy items are centered and positioned towards the bottom of the load.
- Light fragile items are on the inside (near the animal) and towards the top of the load.

Cargo in the Intermountain Region is protected by load planning in an intuitive manner. Furthermore, the packers in the NPS are not driven by profit so they work their animals at a pace that does not damage cargo. Lastly, the packer's keen awareness of their animal's abilities protects cargo by matching animals with the appropriate cargo.

Research question two: What are favorable pack stock characteristics and conformational attributes that are used by experienced packers to select stock for purchase?

- Selecting the appropriate stock can make or break an operation.
- The Central sub-region's Stock Management Plan dictates that animals are to be between 14 hands, two inches and 16 hands, three inches, weigh between 900 and 1300 pounds, and are three to seven years of age upon purchase.
- Northern animals are taller and weigh more.
- Southern animals are shorter, weigh less, and are older.
- The Southern sub-region packers ride mules.

Packers in the Central sub-region must purchase stock in accordance with their Stock Management Plan. Packers in the Northern sub-region need larger animals to carry the heavy loads needed to sustain backcountry pack operations. Southern sub-region animals are smaller because mules are ridden and packed. Packers in the Southern sub-region feel that mules perform better on narrow continuous cliff type trails like the ones found in the Grand Canyon.

Research question three: What equipment is fundamental and essential to the trade of packing?

Pack saddles.

- The Northern and Central sub-regions use the Decker pack saddle.
- The Southern sub-region uses both Saw Buck and Decker pack saddles.

Southern sub-region packers are proud of their Spanish traditions and are reluctant to give up using the Saw Buck pack saddle. The Decker pack saddle was invented in the Northern sub-region and its ease of use has made it the favorite in the Northern and Central sub-regions.

Rope.

- Intermountain Region sling ropes are 30 to 35 feet long.
- Only the Southern sub-region uses lash ropes for every day packing.

- Intermountain Region packers prefer manty ropes that are three-eighths inch in diameter.
- Manty ropes are often are made out of old lash or sling ropes.
- Northern and Southern sub-region packers use seven-sixteenths diameter sling ropes.
- Central sub-region packers use half inch diameter sling ropes.

Rope preference is dictated by what diameter the packer learned to pack with. The Southern sub-region still uses lash ropes due to their fondness for the Saw Buck pack saddle. Regardless of sub-region, packers are resourceful and share the trait of using old sling ropes for manty ropes.

Cargo carriers.

- Intermountain Region packers use, Utah bags, hard and soft panniers, mantys, dirt bags, coolers, duffels, and custom containers.
- The Southern sub-region prefers Utah bags to panniers.
- Custom carriers are job specific.

Cargo carrier technology has not changed for the past 50 years. Packers do not see the need to fix a something (Traditional cargo carriers) that is not broken. However, sometimes there is cargo that cannot be packed with traditional cargo carriers and that is where custom carriers come in.

Research question four: What techniques are used in: cargoing, slinging loads, and leading stock up trails?

Cargoing techniques.

- All three sub-regions load plan cargo in the same manner (i.e., fragile, light, expensive items are loaded above heavy durable items).
- Every sub-region has unique cargo that dictates special load planning.

- Cargo container preference yields itself to the type of pack saddle used in the sub-region.
- All three sub-regions use manty ropes to provide supplemental load restraint

The Southern sub-region uses Utah bags and mantys where as the Northern and Central sub-regions use panniers due to their pack saddle preference. Intermountain Region Packers use nearly identical cargoing techniques. The difference in cargoing techniques throughout the region lies in rope diameter and how each packer throws his or her hitches.

Slinging loads.

- The hitches used in the Intermountain Region are. Squaw, Box, Single Diamond, Double Diamond, Barrel, Basket, Crow's Foot, Christianson, and Decker Diamond.
- The Southern sub-region predominantly uses Squaw, Box, Single Diamond, and Double Diamond hitches.

Hitch selection is dependent on the cargo being loaded. Southern sub-region packers use hitches that incorporate a lash rope. Packers tend to favor hitches that their mentors used or hitches that have worked on similar cargo in the past. Packers throughout the region can throw all the hitches, but are fastest when they are throwing the ones they are most familiar with. The Squaw, Box, single. And Double Diamond hitches can only be thrown with a lash rope.

Leading stock.

- Keeping the string moving at a fast walk of about four miles per hour keeps the animals focused on their job and out of mischief.
- Stopping the string consists of turning the animal, that the packer is riding, perpendicular to the pack string.
- The time and space needed for each animal varies based on the animal's position in the pack string.

Once a pack string is loaded it is imperative to get moving and to only stop when a load shifts or when the animals needed a breather. Meadows and grassy areas can distract the animals and lead to a rodeo if a fast pace is not maintained. Packers find leaning how to lead a sting the most difficult part of packing.

Research question five: How are novice packers recruited and trained?

- The NPS posts novice animal packer positions on a federal job listing website.
- Novice packers train under a mentor/mentee system for several years.
- If money is available packers in the Central sub-region are sent to a two-week long Forest service packing school.

The Intermountain Region does not recruit novice packers. The training system for novice packers is totally devoid of any written curriculum. Currently, mentor packers are teaching from the top of their heads. Curriculum based formal education is only offered in the Central sub-region and only if funding is available Pack stations throughout the region fall under larger work departments and only receive a tiny amount of the departmental funding.

Recommendations

Examination of the data lead to the previously stated conclusions. Based on those conclusions, the following items are recommended.

- Create a standardized Intermountain Region Stock management plan.
- Do not allow packers to shoe their own stock.
- Standardize rope diameters.
- Procure animals from one source to ensure consistency.
- Mandate all packers to ride horses.

- Create an annual venue where packers in the Intermountain Region can share ideas and receive refresher training.
- Start actively recruiting novice packers at known horsemanship events like rodeos.
- Make packing a regional asset that is independent from the individual parks, and thereby create its own funding source and management structure.
- Start an accredited NPS packing school that offers classes to novice NPS packers and the public.

This Ethnographic research endeavor has just scratched the surface of the art of packing. Packing allows humans to reconnect with nature and traverse landscapes that are inaccessible by motorized vehicles yet yield awesome views and experiences. Further research is needed to better understand the scope of packing within the Intermountain Region of the National Park Service.

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