

UNITED STATES DEPARTMENT OF AGRICULTURE  
FOREST SERVICE  
Region 3

REPLY TO: 2220 Management of Ranges

March 13, 1973

SUBJECT: Inventory Procedures for Wild Free-Roaming Horses  
and Burros



TO: Forest Supervisors, Region 3

Enclosed for your information is a copy of an inventory procedure developed by the BLM in Nevada. Perhaps this technique, or a similar one, can be used to start inventorying numbers of animals on your units. We would appreciate any comments that you might have following use of this procedure, or an adaptation of it.

Following are some comments that we have on the enclosed procedures:

Inventory Form

1. Item 3 - List preferred species in descending order and show average percent of use.
2. Item 5 - Show conventional range type, e.g.: 9 - PJ, Quga, Bogr.
3. Item 6 - Indicate relative percentages of use on forage plants by kind of animal, e.g., 30% Horses, 40% Cattle, 30% Deer. If possible, items 7 and 8 could be combined into one chart.
4. Item 2 - When possible, age estimates should be made of adult animals. Often this can be obtained from local residents' knowledge of individual animals.
5. Item 2 - Individual mare and colt combinations should be described when a mare can be identified to a given colt.

We suggest that each of you begin assembling a library of reference materials for wild horses and burros. We will provide documents that come to our attention. Some publications that we have found interesting are:

1. Pellegrini, S. W. 1971. Home Range Territoriality and Movement Patterns of Wild Horses in the Wassuk Range of Western Nevada. Ms. Thesis, University of Nevada, Reno, 39 pp.
2. Dobie, Frank J. The Mustang. Little, Brown and Company, Boston Library of Congress No. 52-6802.

Report Rec'd..... Copies District.....

APACHE			
Supervisor	A   I   S	A   I   S	
			Imbr Ass't
Rec/Lands		B&F	Wildlife Div.
Timber		Pers.	Watershed
Range		Rad.	Radio
Fire			Disp.
A.O.			
		File	

MAR 1 1973

2

3. Wild Horse - Biology and Alternatives for Management, Pryor Mountain Wild Horse Range. BLM, Billings District, P. O. Box 2020, Billings, Montana 59103.

*W R. Fallis*

W. R. FALLIS  
Assistant Regional Forester  
Range and Wildlife Management

Enclosure



United States Department of the Interior

IN REPLY REFER TO:

4500  
(N-043)

BUREAU OF LAND MANAGEMENT  
Ely District Office  
Pioche Star Route, Ely, Nevada  
89301

February 22, 1973

Mr. W. R. Fallis  
Assistant Regional Forester  
U. S. Forest Service  
Region 3  
517 Gold Ave. S.W.  
Albuquerque, New Mexico 87101

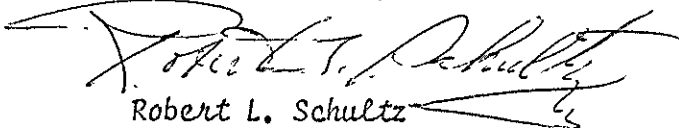
Dear Mr. Fallis:

Per your request, enclosed is a copy of the Inventory Procedures for Wild Horses and Burros developed by Milton Frei of the Ely District.

It might be well to point out that there is some difference of opinion concerning the definitions contained in Enclosure No. 1 of the procedures. However, should a change in definitions be made, it is doubtful that there will be any impact on the procedures themselves.

If we can be of any further assistance, please feel free to contact us at any time.

Sincerely yours,

  
Robert L. Schultz  
District Manager

Enclosure



# United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Nevada State Office  
Federal Bldg. - Room 3008  
300 Booth Street  
Reno, NV 89502

W-040  
IN REPLY REFER TO:

4112  
(N-930.1)  
RECEIVED

AUG 16 1972

Bureau of Land Management  
Ely, Nevada

AUG 14 1972

Instruction Memorandum No. NSO 72-114  
Expires 12/31/72

To: District Managers, Nevada  
From: State Director, Nevada  
Subject: Wild Horse and Burro Inventories

Wild horse and burro inventories in Nevada will be conducted for (1) input to URAs, (2) input to Coordinated Activity Plans. This Instruction Memo provides interim guidelines for both inventories.

We recognize this material as an initial effort in a field where the Bureau has had little experience. We solicit your comments and recommendations for improvement.

The procedures presented here are to be used until recommendations for change are adopted for Statewide use.

- I - Definitions  
See Enclosure 1 for a list of definitions. Uniform terminology is essential in providing these guidelines.
- II - URA Input Level Inventories  
See Enclosure 2
- III - Coordinated Activity Plan Input Level Inventories  
See Enclosure 3

These guidelines were largely developed by Milton Frei, Range Specialist, Ely District, as a result of discussions with this office and field trials in the Ely District. This procedure will be used to conduct inventories as identified in NSO Instruction Memorandum No. 72-61 (Annual Work Plan Directives).

Two forms were developed for such inventories. These forms may be ordered through normal channels.

1. NSO Form 4500-1 - Summary of Wild Horse or Burro Observations
2. NSO Form 4500-2 - Wild Horse or Burro Inventory

*Polla E Chandler*

Enclosures:3

- Encl. 1 - Definitions
- Encl. 2 - URA Input Level Inventories
- Encl. 3 - Coordinated Activity Plan Input Level

Acting

Distribution (w/one encl.)

W0412 - 2  
P520 - 2

WILD HORSE AND BURRO DEFINITIONS

BAND -- consists of a single animal, or one stallion (or jack) and his mares (or jennies) and offspring or bachelor stallions (or jacks) running together.

HERD - one or more bands which utilize the same general area.

TERRITORIAL LIMITS - the maximum geographic limits used by a band over a period of years and under varying weather conditions.

HERD UNIT - the maximum geographic limits used by a herd over a period of years and under varying weather conditions.

WILD HORSE AND BURRO INVENTORY GUIDELINES(URA INPUT LEVEL)I. Identification of Herd Unit Boundaries.11 Establishment

It is essential that the maximum geographic limits of the herd be defined.

- A. Existing Knowledge - In many cases initial herd unit boundaries can be established on the basis of existing knowledge of District personnel and local residents.
- B. Refinement - Additional information should be gathered at every opportunity to get a firm boundary of the maximum geographic limits for the herd.
  1. Horse or burro observations are the best means of establishing the herd unit boundary.
  2. Horse or burro "sign" such as droppings or tracks may be used for this determination. Such sign should be related to known locations of horses or burros (i.e. knowledge about a herd unit boundaries can be developed in concentric circles around known locations of horses).
  3. Supplemental Information - It is not a part of this inventory to delineate territorial limits of individual bands within the herd. However, if the opportunity is available we should do so. Each person conducting this inventory (URA Input Level) should be familiar with the Horse and Burro Inventory procedures for the Coordinated Activity Plan Input Level Inventories.

II. Identification of the Total Number of Animals by Age Class

- .21 Aerial counts should be used to assure that animals are not double counted. The Wildlife Observation Form (D-6000-1) will be used to record counts.
- .22 Herd composition - Adults and young animals (under six months of age) should be tallied separately to obtain information about herd composition and annual increase.
  - A. Supplemental Information - It is not a part of this inventory to identify individual bands or sex ratios within a herd unit. However, if the opportunity is available we should do so.

WILD HORSE AND BURRO INVENTORY

(COORDINATED ACTIVITY PLAN INPUT LEVEL)

.01 Purpose

The purpose of this section is to provide procedures for determining band composition, feeding habits, territorial limits, habitat frequented, seasonal distribution or movement, external influences and the effects of other animal species on horse or burro behavior.

.02 Objectives

A. To provide necessary data for the protection and management of wild horses and burros.

B. To provide data necessary for the coordination of wild horse or burro management with management of other resources.

.03 Authority

The Act of December 15, 1971 (16 U.S.C. 1331-1334) requires the protection, management, and control of wild free-roaming horses and burros on public lands.

.1 Field Procedure

.11 Required Equipment

A. Maps and Aerial Photos

The best maps and aerial photos of the inventory area should be used. Accurate location is essential.

B. Forms

Wild Horse and Burro Inventory Form (NSO Form 4500-2).

C. Camera and Equipment

35MM single lens reflex camera equipped with a telephoto lens.

D. Spotting Scope

E. Tape Recorder

Battery operated cassette type tape recorder with remote control microphone.



.12 Size of Inventory Area

May vary depending upon the extent of the area delineated for Coordinated Activity Planning. It must include all of a herd unit even though the herd unit is not encompassed by the Coordinated Activity Planning area.

.13 Inventory Techniques

Various techniques and combinations of techniques will be necessary depending upon terrain and the number of bands within a herd unit.

A. Helicopter Technique

Helicopters give the advantage of intensive inventory of a large area in relatively short periods of time. Not all data required can be obtained by helicopter observation alone (see .14 below).

B. Surveillance of Water Sources Technique

Maintain a continuing surveillance of all water sources in the inventory area. To accomplish this, each water source is located and systematically watched for a period of 3 or 4 days. The number and identity of all horse or burro bands utilizing each water source is documented on a Wild Horse and Burro Inventory Form. This method provides a very good indication of the number and identity of bands utilizing the area. Accurate data may be difficult to obtain, however, in areas with numerous or closely located waters which may have an overlap in use by various bands. These areas require that each water source be watched at the same time or bands using two separate waters interchangeably might be overlooked. In addition, other data, important to a wild horse or burro inventory, cannot be obtained from single locations such as water sources.

C. Systematic Grid Technique

Travel throughout the inventory area in a systematic manner and document wild horse or burro bands as they are encountered. The advantage of this method is that animals are recorded in the location they are presently inhabiting. Data collected from these locations will prove valuable in determining seasonal distribution and territorial boundaries of wild horses or burros. Disadvantages are, that many of the animals inhabiting the inventory area may be missed in the inventory. The quality of the inventory will be directly related to the observer's ability to completely cover the entire area. Access is a critical factor in determining this ability.

D. Combined Technique

The recommended method for conducting wild horse or burro inventories is a combination of the above methods. The first step is to determine the number and identity of all wild horse or burro bands inhabiting the area. Helicopters can be used for this purpose or a continuous surveillance of all water sources in the inventory area can be maintained as discussed above. After the initial inventory is completed to the observer's satisfaction, it is continued by systematically traversing the area and recording observations as wild horses or burros are encountered. This portion of the inventory may continue for a period of several years or until an accurate picture of seasonal distribution, territorial limits and forage habits is determined.

.14 Observation Data

A. Necessary Data

Presently identified data which should be collected will yield information on band composition, feeding habits by time of year and weather conditions, territorial limits, habitat frequented, seasonal distribution or movement, external influences and the effect of other animal species on horse or burro behavior.

B. Importance of Data

Collection of insufficient data or failure to keep adequate records will result in a meaningless inventory. The need for good inventory data is brought to light by an understanding of some of the habits of wild horses and burros. Wild horses and burros are basically territorial in nature. Most bands will consist of one male and one or more females. This band will generally occupy a specific area and intermix with other bands in the area only occasionally.

As a result of this territorial instinct, many management decisions which have an affect on wild horses or burros will apply to only one individual horse or burro band. The fact that land management decisions may be made which affect individual bands, makes the need for high quality data on each and every band especially important. High quality data are needed to document territorial limits and band composition, so that an important part of wild horse and burro lifestyle is not significantly disrupted by land management decisions. For this reason, intensive inventories containing high quality information are especially important for wild horses or burros.

C. Use of Inventory Form - (NSO 4500-2)

Some of the entries on the form are self explanatory, while others require some explanation. Those entries requiring an explanation are discussed below:

1. Observer Number

The observer number is a number an individual observer assigns to a particular horse or burro band at the time of observation. Use of this number is discretionary, but it can be used to tie observations to a required field map. If a tape recorder is used, the number can be used for the same purpose or to simply separate one observation from another on the recording. When using a tape recorder, and an observer number is used to tie the observation to a field map, the number should be transferred to the observation form when the form is completed. If the number is used solely as a basis for separating one observation from another on the tape it need not be transferred to the observation form unless the tape is kept as a part of a permanent record.

2. Location

The location entry provides for documenting the observation location by legal description only. Location entries by landmark reference are often vague and difficult to pinpoint. Landmark reference locations are not considered desirable because studies by Pellegrini (1971) indicate the home range of wild horse or burro bands is limited to 11 or 12 square miles. If this is true, landmark reference location descriptions will not be exact enough to accurately depict band movement or territorial limits.

If the observer is working in unsurveyed areas, legal descriptions will not be available. In these areas, the observer should accurately plot the animal's location on a field map so that it can later be transferred to a permanent map. A landmark reference location can also be inserted on the form in this situation.

3. Number, Age Class, Sex and Color Identification

Numbers, age classes and color markings of most wild horse or burro bands will be fairly easy to determine. Sex classification, on the other hand, will be more difficult unless the animals can be approached quite closely. Every effort should be made to determine sex. If sex determination is not possible, the observation form should be left blank under this column.

4. Plant Species Utilized

Space for documenting the plant species being utilized by wild horses or burros is provided on the observation form. Observers should attempt to determine what species the animals are utilizing at the time of observation. If the plant species being utilized cannot be seen at time of observation, visit the area in which the animals were feeding and attempt to determine which plants show evidence of being utilized. A good way to be sure the utilization has been made by horses or burros, is to make observations only around the animals' tracks. If evidence indicates that more than one plant species has been utilized, list those species in descending order of importance by the degree utilized or by the comparative number of each species utilized. The phenological development stage of each species utilized should be recorded also, so that the foraging habits of wild horses or burros can be compared with season or plant growth stage.

5. Evidence of Other Animal Species

The influence of other animal species on wild horses or burros is an unknown factor which needs to be documented. If other animal species are observed in the same area as wild horses or burros, their presence and distance from the horses or burros should be noted. Also, if other animal species are not actually seen, but evidence indicates that they are presently inhabiting the same area as horses or burros, the type of evidence observed and the animal species should be recorded. Examples of species which would probably exert a significant influence are livestock and most species of big game.

6. Weather Condition

Weather conditions at the time of observation should be documented. Avoid short term weather conditions. Short term weather conditions will not be meaningful in determining the relationship between weather and wild horse or burro distribution. Instead of recording weather conditions for one particular day, the observer should record a narrative statement that indicates existing weather conditions for a particular season or other period of time. An example would be a very wet winter followed by an extremely dry spring. Long term weather conditions will have a more pronounced effect on horses or burros and if documented, will eventually show a relationship between weather and distribution or habitat limits.

7. Location of Water

It is important that the location of waters be recorded in relation to the location of wild horses or burros. Water locations will be useful in determining the confines of wild horse or burro home range and the territorial limits, or overlap of territorial limit, between individual horse or burro bands.

8. Encounter Reactions

Since so little is known about the behavior of wild horses or burros, their reactions when encountered by man should be documented. Record such things as escape cover or escape routes sought by animals, unexpected aggressiveness or any type of bands social order displayed during flight.

9. External Influences

Document external influences such as mining activity, road construction, timber cutting, off-road vehicle use, hunting and livestock handling which might have an influence on wild horses or burros. Although the impact of these influences will be difficult to determine, the documentation of their existence may eventually show a significant relationship to wild horse or burro populations.

10. Comments

Any additional comments which the observer feels are important, should be recorded on the form. One example of an important entry is the absence of one or more animals from a particular horse or burro band. A reduction in band composition could indicate a violation of Public Law 92-195 or a change in social order between lands. Another example is any identifying characteristics which will enable the observer to reidentify a particular band at a later date. The comments section also can be used to record such things as trails, migration routes and rolling areas which cannot be associated with any specific horse or burro band.

11. Photographs

Photographs should be taken of each band at the time of observation. Photographs are important in the reidentification of individual horse or burro bands.

.2 Office Procedures

.21 Master Map

After an observation form has been completed in the field, the observer plots the location of the animals onto a consolidated office master map (see Illustration 2). The map may be a District-wide map or compiled on a planning unit basis. Use of overlays is recommended since the map will become cluttered after numerous observations are recorded.

A. Inventory Number

As the location of each observation is plotted on a master map, the observation should be assigned an inventory number. Inventory numbers should be assigned consecutively as the observations are plotted onto the map. The same number should be placed on the Wild Horse or Burro Observation Form (Illustration No. 1) under inventory number. Individual observation forms can then be cross-referenced to the master map for comparison purposes.

B. Legend

A legend should be prepared for the master map as shown in Illustration No. 2. As observations are plotted onto the master map, the date of observation and the assigned inventory number should be recorded in the legend.

1. Band Name or Number

A band name or number should be assigned to each band at the time its first observation is plotted. Band names or numbers are permanently assigned to each band as long as they inhabit the inventory area. As subsequent observations are recorded for each band, they are recorded in the legend with a new date and inventory number. The assigned band name or number recorded from the first observation, is repeated in the legend under the appropriate heading. By assigning a band name or number to each band, the observation dates and inventory numbers for any particular band can immediately be seen in the legend of the master map. Band names are preferred over band numbers in identifying individual bands. Band names are easier to relate to and names can be used to identify the particular band with which they are associated.

## 2. Band Map Color Codes

If desired, band map color codes can be used on the master map. When using color codes, a color is assigned to each observation as it is recorded on the map. The same color is then repeated in the legend opposite the inventory number. By color coding each repeat observation of a particular band with the same color as that of the initial observation, the location of each observation can easily be seen on the map. Color coding will give a visual picture of seasonal movements and territorial limits for any particular wild horse or burro band (Illustration No. 2).

## .22 Band File

As the inventory progresses a two-way file should be established for each wild horse or burro band.

### A. Section One

Should contain photographs and other information pertaining to the band, plus a summary of Wild Horse or Burro Observation Forms. This form is completed for each band by transferring the required data from all Wild Horse or Burro Inventory Forms. Identifying characteristics from the comments section of the form should be recorded on the summary. If no identifying characteristics are available, a reference to the location of identifying photographs or negatives should be recorded. When completed, this form will provide a tabulated summary of all observations for a particular horse or burro band.

### B. Section Two

Should contain all individual Wild Horse or Burro Inventory Forms for the band by consecutive date of observation.

References

Pellegrini, S. W. 1971. Home Range Territoriality and Movement Patterns of Wild Horses in the Wassuk Range of Western Nevada. M.S. Thesis, University of Nevada, Reno, 39p.



WILD HORSE OR BURRO INVENTORY FORM

Illustration No. 1

District Ely Inventory No. 1  
 Planning Unit Duckwater 1/ Observer No. 2  
 Observer Milt Frei  
 Horses X Burros \_\_\_\_\_ Total No. 4  
 Date 4/25/72 Claimed \_\_\_\_\_  
 Time 3:10 pm Unclaimed 4  
 Location: Twp 10 N. Range 54 E. Sec. 15 1/4 Sec. SW

2/

	No.	Sex	Color	No.	Sex	Color	No.	Sex	Color	No.	Sex	Color	No.	Sex	Color
Cult	1	F	Mouse												
	1		Mouse												
	1		Bay												
Yearling	1		Bay												
Pung															

ON SITE CHARACTERISTICS

3/ Plant Species Utilized Orhy  
Siby

4/ Phenology SG  
SG

5/ Dominant Vegetation Orhy, Atco, Chvi  
 Elevation 6600

6/ Aspect West

7/ Slope 7%

8/ Evidence of Other Animal Species: Yes X No \_\_\_\_\_  
 Species Cattle & Sheep  
 Type of Evidence Droppings Distance \_\_\_\_\_

9/ Weather Conditions: Extended dry spring following very dry winter.

GENERAL SITE CHARACTERISTICS

Water: Distance 2.5 mi. SE Location, T. 10 N. R. 54 E. Sec. 25 1/4 Sec. SW

1/ Encounter Reactions: Horses ran north into scattered trees after seeing me from a considerable distance.

2/ External Influences: Livestock handling, both sheep & cattle, occurs in the area

Comments: This band should be named the mouse band. The two horses classified as mouse, resemble mouse fur in color. The mouse like color makes reidentification of this band very easy.

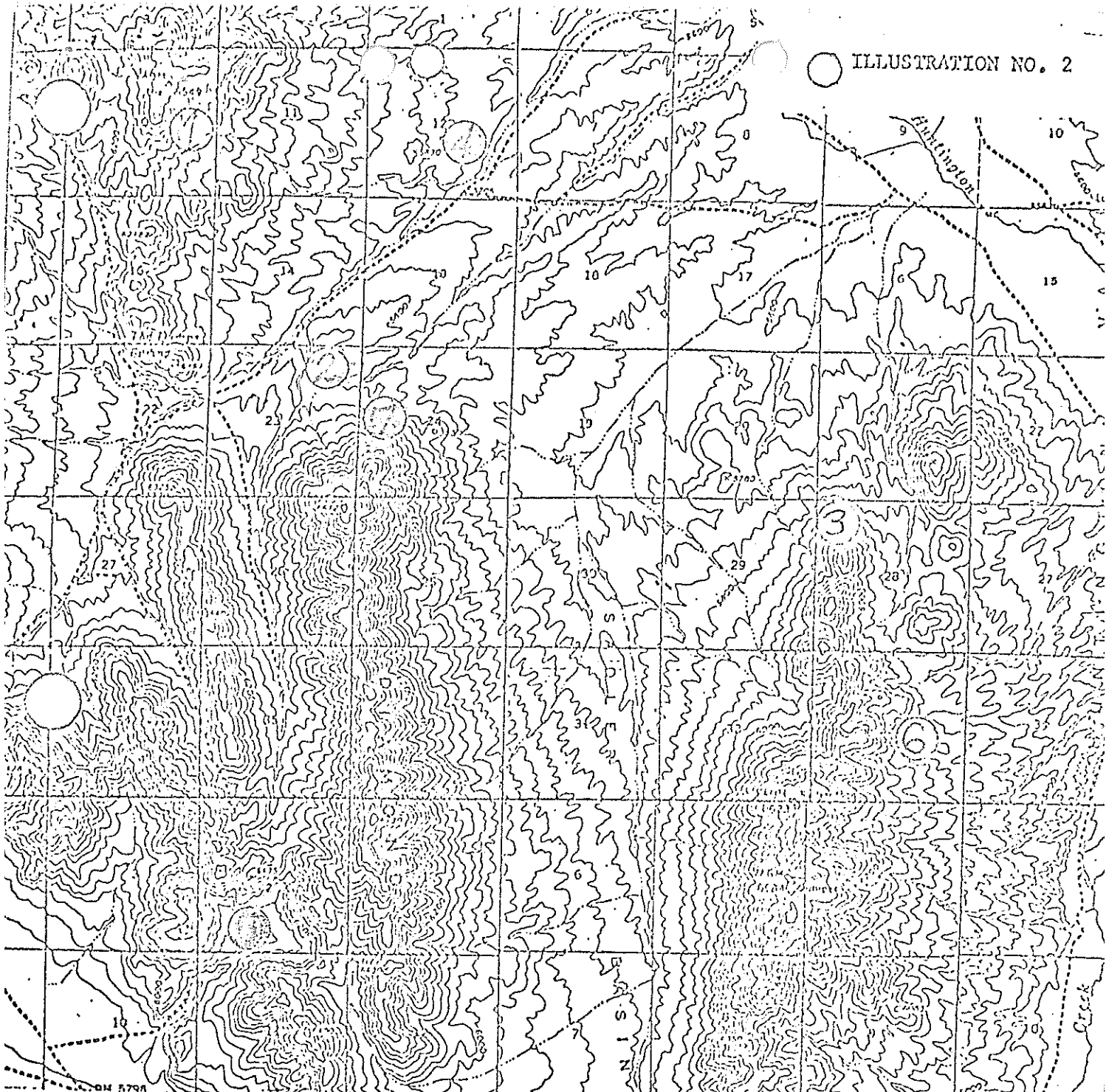
## INSTRUCTIONS FOR COMPLETING WILD HORSE OR BURRO







## INVENTORY FORM

- (1) Consecutive numbers by observer, correlated with field map.
- (2) Indicate sex if possible to determine. If not possible to determine, leave blank.
- (3) List species utilized in order of importance (or by degree utilized) for animals at time of observation.
- (4) Phenology - Enter symbol which corresponds to stage of development in the general area of observation.
 

SG - Start growth.	PF - Peak flowering
SR - Seed ripe	D - Dormant
R - Regrowth	
- (5) List dominant three species of vegetation in descending order of dominance.
- (6) Estimate aspect of general area.
- (7) Estimate average slope of general aspect.
- (8) If there is evidence of other animal species occupying the area, indicate the species involved and type of evidence observed. If other species are actually seen, indicate distance from horses or burros.
- (9) List any factors which may influence present area of use or species utilization such as (1) extended drought (2) late snow melt (3) extended cold periods (4) extended wet periods.
- (10) Indicate escape cover and routes sought by animals when disturbed.
- (11) Identify any external influences such as mining activity, road construction, timber cutting, ORU use, hunting, livestock handling, etc..

ILLUSTRATION NO. 2



Date	Inventory No.	Band Name or No.	Band Map Color/Symbol
1/1/71	1	Mouse Band	
5/72	2	Mouse Band	
	3	Black Band	
15/72	4	Mouse Band	
1/72	5	Buck Band	
2/72	6	Black Band	
10/72	7	Mouse Band	