

301.10

SURVEY OF WATER SUPPLY AND STOCK CONDITIONS
NAVAJO RESERVATION

Purpose of survey program is to determine ways and means of developing the Navajo country so as to make fullest use of the resources with respect to stock raising and irrigation farming.

NEW PROGRAM

Range Development.

- (1) Necessity of survey to determine ultimate water supply development for stock, domestic and irrigation (springs, wells, reservoirs to fit situation)
- (2) Definite program must be followed to completion

A. Stock Water Development.

- (1) Areas of primary importance (permanent work) to work out definite range program to include plans for general water supply
- (2) Secondary development to supply temporary water to relieve other areas for short periods
- (3) Additional reservoirs to make water coverage more complete; i. e. in case of localized rains additional reservoirs may be added so that the probabilities of storage will be greater.

Things to Be Determined by Survey

Division of country into units bounded by natural or customary boundaries.

- (1) Condition of range in various areas
- (2) Number of stock on each area
 - (a) Number of Indians on each unit
- (3) Present water supply and necessary increase
- (4) Determine areas to be established for summer, winter, and lambing ranges wherever possible
- (5) Other improvements
 - (a) Improvement of herds by breeding and culling
 - (b) Rodent Control
 - (c) Elimination of surplus horses
 - (d) Advisability and possibility of drift fences or control of watering places
 - (e) Recommendations as to additional stockmen to insure success of new measures
 - (f) Methods of handling to be recommended

Irrigation

- (1) Consideration of present projects
 - (a) Condition of projects
 - (b) Improvement to present projects
- (2) New Projects
 - (a) Location
 - (b) Areas

- (c) Probable costs
- (3) Effect of completion of irrigation development on range conditions
 - (a) By reducing number of Indians in stock business
 - (b) Raising of supplemental winter feed

Steps in Development of Problem

Work to be done before actual field survey begins

- (1) Information to be obtained from superintendents
 - (a) Outline of areas to be considered as units in making survey
 - (b) Location new water developments where work can be done immediately
 - (c) Location of more difficult spring developments
 - (d) Location of possible surface reservoir sites
 - (e) Any information relative to well drilling development

- (2) Preparation of maps

To be made by compilation of data from present maps.

- (a) Map of entire reservation about 1/8" to mile
- (b) Map of each jurisdiction
 - Scale 1/8" to mile for working map
- (c) Tabulation of populations of various areas
- (d) Stock in various areas
- (e) Location of present development on jurisdiction maps (both stock and irrigation)

Field Work

Study area.

- (1) Determine range conditions as to forage coverage and taking into consideration stock in area and additional water essential
- (2) Consider possibilities of water development in area
 - (a) As to type
 - (b) As to amount of development as related to area
 - (c) Relation of present water to completed supply
 - (d) Consider plans for and cost of development

Make preliminary surveys

- (3) Condition of present water supplies and necessary improvements including costs
- (4) Study of stock conditions as to numbers and classes
- (5) Relationship between range utilization and water development
- (6) Consideration of rodent situation

Possibly desirable to have Biological Survey man on party
- (7) Data as to standard of work whether permanent or temporary
- (8) Description of conditions to determine sequence of development
- (9) Take pictures to illustrate work now done and condition of range
- (10) Make reconnaissance of prospective irrigation projects
- (11) Consider situation as to dipping vats
- (12) Consideration of erosion control