ASC PROJECT PROPOSAL FORM

This form is to be completed during the project proposal/planning phase.

	PROJECT [Wildcast**]**
Title:	The Wildlife Potential Habitat Forecasting Framework
Funding Source:	USGS Program: Wildlife Terrestrial and Endangered Resources USGS Program: Terrestrial Freshwater and Marine Environments Major Initiative:
Abstract:	The WILDlife Potential Habitat ForeCASTing Framework or WildCast, was begun as a collaboration between the National Park Service and the U.S. Geological Survey to develop a predictive framework for ecosystems and wildlife habitat in Northwest Alaska. The study area includes the five national park units that make up the Arctic Inventory and Monitoring Network: Gates of the Arctic National Park and Preserve, Noatak National Preserve, Kobuk Valley National Park, Cape Krusenstern National Monument, and Bering Land Bridge National Monument, as well as the adjacent Selawik National Wildlife Refuge of the U.S. Fish and Wildlife Service (Figure 1). The basic premise of the project is to develop methods and tools that, in the face of limited data, can be used to better understand how climate change might influence ecosystems and the habitats of birds and mammals that inhabit this Arctic landscape. Our results suggest modest increases in forest and tall shrub ecotypes in Northwest Alaska by the end of this century thereby increasing habitat for forest-dwelling and shrub-using birds and mammals. Conversely, we predict declines in several more open low shrub, tussock and meadow ecotypes favored by many waterbird, shorebird and small mammal species. This is the first evaluation of its type for boreal and tundra ecosystems that provides a comprehensive assessment involving the full diversity of ecosystems across a broad region. Overall, we view the results as a valuable tool for posing testable hypotheses of changes in ecotypes and species' habitats; as a means of identifying potential priorities for management, inventory, monitoring, and research activities; and as basis for improvement over time as new data become available. 10T
Project Start Date:	2009
Project End Date:	2014
Spatial Description:	The study area includes the five national park units that make up the Arctic Inventory and Monitoring Network: Gates of the Arctic National Park and Preserve, Noatak National Preserve, Kobuk Valley National Park, Cape Krusenstern National Monument, and Bering Land Bridge National Monument, as well as the adjacent Selawik National Wildlife Refuge of the U.S. Fish and Wildlife Service.
Temporal Description:	NA
Responsible parties:	Program Manager: Anthony DeGange Principal Investigator(s): Bruce Marcot Researcher(s): Winfree, Robert, NPS; Lawler, Lance, NPS; Jorgensen, Torre M, UAF Data Steward: Bruce Marcot Data Manager: Dennis Walworth Metadata Specialist: Dennis Walworth
Hardware environment:	PC; Garmin and i-got-u GPS; Cannon, GoPro and Drift cameras

Software environment:	Windows, GPS SW, Excel, Google, @trip PC, ArcSoft Panorama, ArcGIS
ASC manager sign-off:	Program Manager signature/date:

ASC PROJECT IMPLEMENTATION FORM

This form is to be completed during early implementation of the project.

DM manager sign off	Data Manager signature/date:
Short abstract for web:	We used a modeling framework and a recent ecological land classification and land cover map to predict how ecosystems and wildlife habitat in northwest Alaska might change in response to increasing temperature.
Project location:	Map point: 66.825 -159.135 Bounding box: 68.87000 -149.05000 64.78000 -169.22000 Boundary polygon: 10T Common Place Names: Alaska, Northwest Arctic, Bering Land Bridge National Preserve, Selawik National Wildlife Refuge, Cape Krusenstern National Monument, Gates of the Arctic National Park and Preserve, Kobuk Valley National Park, Noatak National Preserve
Keywords:	Land Surface > Geomorphology, Land Surface > Landscape, Biosphere > Terrestrial Ecosystems > Alpine/Tundra, Land Surface > Land Use/Land Cover > Land Cover, Land Surface > Frozen Ground > Permafrost, Biosphere>Terrestrial Ecosystems>Shrubland/Scrub, Biosphere>Terrestrial>Wetlands
ASC Portal information:	Project ID: 349 Contact ID: AD
Project folder:	Q Drive Tudor Share/CAE/Wildcast/MyDataIsHere Permissions: Management: write Project team: full Data Management: read USGS ASC: read USGS all: none Public: none
Responsible parties:	Funding Organization(s): ASC Point of Contact(s): BM Principal Investigator(s): BM Researcher(s): AD, TJ
Other contributors:	Winfree, Robert, NPS; Lawler, Lance, NPS
ASC manager sign-off:	Program Manager signature/date:

ASC PROJECT FORMS TABLE OF CONTENTS

This form is to list the ASC Data Management Forms completed as part of this project.

New Data Collections:	Form Name: `Nadir Images`	ID: `NadirImage`	
	☒ field form design	☒ data collected	☒ RDMP form complete
	☒ raw metadata prep	☒ archive raw data	☒ QC raw data
	☒ base metadata prep	☒ archive base data	
	Form Name: `10T`	ID: `10T`	
	☐ field form design	☐ data collected	☐ RDMP form complete
	☐ raw metadata prep	☐ archive raw data	☐ QC raw data
	☐ base metadata prep	☐ archive base data	
Existing Data Collections:	Form Name: `10T`	ID: `10T`	
	☐ data acquired	☐ RDMP form complete	
	Form Name: `10T`	ID: `10T`	
	☐ data acquired	☐ RDMP form complete	
Project Data Products:	Form Name: Nadir photographs taken during low-altitude transects of the Arctic Network of national park units and Selawik National Wildlife Refuge, Alaska, July 2013.		
	ID: `NadirImageProd`		
	☒ RDMP form complete	☐ metadata prep	☐ data review
	☒ archive data	☐ prep data for public	☐ web development
	☐ publish		
	Form Name: `10T`		ID: `10T`
	☐ RDMP form complete	☐ metadata prep	☐ data review
	☐ archive data	☐ prep data for public	☐ web development
	☐ publish		
Custom Software:	Form Name: `10T`		ID: `10T`
	☐ document software	☐ RDMP form complete	☐ archive software
	Form Name: `10T`		ID: `10T`
	☐ document software	☐ RDMP form complete	☐ archive software
Models:	Form Name: `10T`		ID: `10T`
	Form Name: `10T`		ID: `10T`
Project Contacts:	Form Name: `Bruce Marcot`		ID: `BM`
	Form Name: `Anthony DeGange`		ID: `AD`
	Form Name: `Torre Jorgensen`		ID: `TJ`
	Form Name: `USGS – Alaska Science Center`		ID: `ASC`
	Form Name: `10T`		ID: `10T`

Data Description:	Form Name: Nadir Image EXIF data	ID: NadirImageDesc
	Form Name: 10T	ID: 10T
Data Domain:	Form Name: Nadir camera make and model	ID: NadirCameraMake
	Form Name: 10T	ID: 10T
Data Lineage:	Form Name: Nadir image process flow	ID: NadirImageProcess
	Form Name: 10T	ID: 10T

ASC NEW DATA COLLECTION FORM

Complete this form for data that does not currently exist and will be collected or generated during the project; for example, a new field data collection. Remember to add the form Name: and ID: to the Project Table of Contents.

ID [NadirImage**]**	
Name:	Nadir Images
Description:	Nadir photographs taken during low-altitude transects of the Arctic Network of national park units and Selawik National Wildlife Refuge, Alaska.
---------- To be completed after project has been approved for funding ----------	
Format:	Image JPEG
Data collection template:	Link to template: 10T Data Description Form: NadirImageDesc
Data collection protocols:	Nadir images taken by automatic time-lapse from a Drift HD-170 (focal length 5.00 mm) and a GoPro Hero3 Black Edition (focal length 2.77 mm) of the arctic landscape during low altitude transects at five second intervals.
Spatial reference system:	WGS84 - World Geodetic System 1984 10T
Spatial scope & scale:	Description: Gates of the Arctic National Park and Preserve, Noatak National Preserve, Kobuk Valley National Park, Cape Krusenstern National Monument, and Bering Land Bridge National Monument, as well as the adjacent Selawik National Wildlife Refuge of the U.S. Fish and Wildlife Service. Scale: NA
Temporal scope & scale:	Description: July 16, 17, 18, 2013 Scale: NA
Data description:	Form ID: NadirImageDesc
Keywords:	Land Surface > Geomorphology, Land Surface > Landscape, Biosphere > Terrestrial Ecosystems > Alpine/Tundra, Land Surface > Land Use/Land Cover > Land Cover, Land Surface > Frozen Ground > Permafrost, Biosphere>Terrestrial Ecosystems>Shrubland/Scrub, Biosphere>Terrestrial>Wetlands
Data Process Steps:	Form ID: 10T
Data volume estimate:	400 Giga-Bytes
Restrictions:	Use: None Legal: None
Repository(s) for data:	Alaska Science Center 10T

ID [NadirImage**]**	
Exclusive use period:	Period: *none* Justification: 10T
Citation:	Marcot, B., M.T. Jorgenson, A.R. DeGange
Digital object identifier:	NA
Contact:	Form ID: BM

ASC DATA DESCRIPTION FORM

This form is to be completed for each spreadsheet, data table, and/or field form which is to be archived, distributed or for other reasons need metadata prepared. Copy-paste column definition section in the form table as needed to complete a definition for each column. Remember to add the form Name: and ID: to the Project Table of Contents.

ID [NadirImageDesc**]**	
Name:	Nadir Image EXIF data
Description:	Spreadsheet containing camera metadata for a GoPro Hero3 Black Edition and a Drift HD-170. Includes position as implied by correlating exposure time with GPS time intervals. Includes ecotype classification pixel counts.
Format:	spreadsheet
Location:	Tudor Share/CAE/Wildcast/NadirImages/
Key Columns:	File Name
Column(s): (for each column)	Name: Folder Definition: Name of the computer folder housing the digital image files Datatype: character Other: 10T Units: 10T Min Value: 10T Max Value: 10T Domain ID: 10T QC Tests: 10T Use Limits: 10T Legal Const: 10T
	Name: File name Definition: Name of the photographic image computer file (.jpg) Datatype: character Other: 10T Units: 10T Min Value: 10T Max Value: 10T Domain ID: 10T QC Tests: 10T Use Limits: 10T Legal Const: 10T

Name: Date and time
Definition: Date (YY:MM:DD) and time (HH:MM:SS) the photograph was taken
Datatype: datetime Other: 10T
Units: YY:MM:DD HH:MM:SS
Min Value: 10T Max Value: 10T
Domain ID: 10T
QC Tests: Ensured that date and time in each photograph file's EXIF (exchangeable image file format) data were accurate, as these data linked to the positions acquired from an on-board GPS and used for geotagging each photograph.
Use Limits: 10T
Legal Const: 10T

Name: Camera make
Definition: Make of the camera used to take the photograph.
Datatype: character Other: 10T
Units: 10T
Min Value: 10T Max Value: 10T
Domain ID: NadirCameraMake
QC Tests: 10T
Use Limits: 10T
Legal Const: 10T

Name: Camera model
Definition: Model of the camera used to take the photograph.
Datatype: character Other: 10T
Units: 10T
Min Value: 10T Max Value: 10T
Domain ID: NadirCameraMake
QC Tests: 10T
Use Limits: 10T
Legal Const: 10T

Name: Height and width
Definition: Size of the digital image in pixels.
Datatype: character Other: 10T
Units: pixels
Min Value: 10T Max Value: 10T
Domain ID: 10T
QC Tests: 10T
Use Limits: 10T
Legal Const: 10T

Name: Size of image file
Definition: Number of pixels of the digital image (= height x width).
Datatype: number Other: 10T
Units: pixels
Min Value: 10T Max Value: 10T
Domain ID: 10T
QC Tests: 10T
Use Limits: 10T
Legal Const: 10T

Name: Exposure (sec)
Definition: Shutter speed in seconds.
Datatype: character Other: 10T
Units: fraction of seconds
Min Value: 10T Max Value: 10T
Domain ID: 10T
QC Tests: 10T
Use Limits: 10T
Legal Const: 10T

Name: Aperture (F-number)
Definition: F-stop of the exposure.
Datatype: character Other: 10T
Units: f-stop
Min Value: 10T Max Value: 10T
Domain ID: 10T
QC Tests: 10T
Use Limits: 10T
Legal Const: 10T

Name: ISO
Definition: Sensitivity (“film speed”) setting of the exposure (ISO = International Organization of Standardization).
Datatype: number Other: 10T
Units: 10T
Min Value: 10T Max Value: 10T
Domain ID: 10T
QC Tests: 10T
Use Limits: 10T
Legal Const: 10T

Name: Flash used?
Definition: Whether camera flash was used for the exposure (all “no”)
Datatype: boolean Other: 10T
Units: 10T
Min Value: 10T Max Value: 10T
Domain ID: 10T
QC Tests: 10T
Use Limits: 10T
Legal Const: 10T

Name: Focal length
Definition: Focal length (focus distance to object) setting for the exposure.
Datatype: number Other: 10T
Units: millimeters
Min Value: 10T Max Value: 10T
Domain ID: 10T
QC Tests: 10T
Use Limits: 10T
Legal Const: 10T

Name: Latitude
Definition: Latitude of the location of the center of the photograph in digital degrees north of the equator.
Datatype: decimal Other: 10T
Units: decimal degrees
Min Value: 10T Max Value: 10T
Domain ID: 10T
QC Tests: 10T
Use Limits: 10T
Legal Const: 10T

Name: Longitude
Definition: Longitude of the location of the center of the photograph in digital degrees west of the prime meridian.
Datatype: decimal Other: 10T
Units: decimal degrees
Min Value: 10T Max Value: 10T
Domain ID: 10T
QC Tests: 10T
Use Limits: 10T
Legal Const: 10T

Name: Flight altitude ASL m
Definition: Altitude of the airplane above sea level (ASL) when the photograph was taken, in meters.
Datatype: number Other: 10T
Units: meters
Min Value: 10T Max Value: 10T
Domain ID: 10T
QC Tests: 10T
Use Limits: 10T
Legal Const: 10T

Name: DEM elevation m
Definition: Ground-level elevation at the center of the photograph, as taken from a digital elevation model (DEM) map in the ArcMap geographic information system, in meters.
Datatype: number Other: 10T
Units: meters
Min Value: 10T Max Value: 10T
Domain ID: 10T
QC Tests: 10T
Use Limits: 10T
Legal Const: 10T

Name: Flight altitude AGL m
Definition: Altitude of the airplane above ground level (AGL) at the center of the photograph, in meters; calculated by: [Flight altitude ASAL in meters] – ([DEM elevation in feet] / [3.281 feet/meter]).
Datatype: number Other: 10T
Units: meters
Min Value: 10T Max Value: 10T
Domain ID: 10T
QC Tests: 10T
Use Limits: 10T
Legal Const: 10T

ASC DATA DOMAIN FORM

This form is to be completed for each data domain used in spreadsheets, data tables, and/or forms which are to be archived, distributed or for other reasons need metadata prepared. Copy-paste domain value section in the form table as needed to complete a definition for each domain value. Remember to add the form Name: and ID: to the Project Table of Contents.

ID [NadirCameraMake**]**	
Name:	Nadir Camera make and model
Description:	Code identifying camera make and model
Domain value(s):	Value: Drift HD170 Definition: Drift HD 170 used for Nadir imagery.
	Value: GoPro Hero3-Black Edition Definition: GoPro used for Nadir imagery.

ASC DATA PROCESS STEP / DATA QUALITY / LINEAGE FORM

This form is to document non-trivial data processing steps for raw data collection and handling, pre-processing of existing data, and preparation of product data. Copy-paste process step section in the form table as needed to complete a definition of each significant process step. Remember to add the form Name: and ID: to the Project Table of Contents.

ID **[**NadirImageProcess**]**	
Name:	Nadir image process flow
Data acquisition methodology:	Nadir photographs and videos were shot along flight routes conducted July 16, 17, and 18, 2013, totaling 17 h 46 m flight time and 2,590 km flight distance, at a mean altitude of approximately 300 m above ground level. Flight routes were selected to provide a broad representation of land cover types within each unit and to overfly specific locations of recent disturbances. Photographs were geotagged;; all nadir photographs and videos were corrected for image lens distortion and appearance (increased gamma and color enhancement.
Report conformance with process steps:	10T
Process Steps(s):	Step ID: Organize Description: Raw photographs were organized into folders, renamed by flight date and camera type. Contact ID: BM
	Step ID: Prune Description: Extensively redundant or extraneous photographs were deleted, such as time-lapse images taken when the planes were stationary, long sequences when over deep water (e.g., over Kotzebue Sound), and other images with no usable content. Contact ID: BM
	Step ID: VerifyTime Description: Ensured that date and time in each photograph file's EXIF (exchangeable image file format) data were accurate, as these data linked to the GPS waypoints for geotagging each photograph. Contact ID: BM
	Step ID: AdjustColor Description: Each photograph was adjusted for color saturation and gamma, which served to highlight many details. Contact ID: BM
	Step ID: ImageMetadata Description: EXIF data from all photograph files -- including photograph file name and computer directory name, photograph date and time, camera type and settings, geotagged digital latitude and longitude, and altitude above mean sea level -- were extracted into spreadsheet files (.xlsx formats) by flight date and camera type. Contact ID: BM

	Step ID: `CorrectDistortion` Description: Each nadir photograph was corrected for lens distortion to adjust for their wide-angle (170d fisheye lens) distortion that occurred from the small focal lengths, and cropped to exclude blank portions of the image that occur after fisheye correction. Contact ID: BM
	Step ID: `MapEcotype` Description: The geolocation (latitude and longitude) of each nadir photograph from the was overlaid in GIS (ArcMap 10.0) onto a map of ecotypes of the ARCN region (Jorgenson et al. 2009). Presence and area of each ecotype within a square window centered on each photograph location were recorded and included in the EXIF spreadsheet files. Contact ID: TJ
	Step ID: `DetermineElevation` Description: The individual photograph geolocations were intersected in GIS with a digital elevation model (DEM) of the ARCN study area so that ground-level elevation could be determined for each photograph location. Then, the difference between flight altitude above mean sea level (determined enroute via the on-board GPS unit) and ground-level elevation gave flight elevation above ground level for all photographs, which was used to verify the mean flight elevation used in the calculations of photograph time-lapse intervals and areal coverage of each photograph. Contact ID: TJ

ASC DATA PRODUCT FORM

Complete this form for each internally and publicly published data product. Remember to add the form Name: and ID: to the Project Table of Contents.

ID [NadirImageProd**]**	
Name:	Nadir photographs taken during low-altitude transects of the Arctic Network of national park units and Selawik National Wildlife Refuge, Alaska, July 2013.
Description:	Nadir images taken by automatic time-lapse from a Drift HD-170 (focal length 5.00 mm) and a GoPro Hero3 Black Edition (focal length 2.77 mm) of the arctic landscape during low altitude transects at five second intervals. Transects were conducted from small aircraft over the National Park Service's Arctic Network (Bering Land Bridge National Preserve, Cape Krusenstern National Monument, Gates of the Arctic National Park and Preserve, Kobuk Valley National Park, and Noatak National Preserve) and the U.S. Fish and Wildlife Service's Selawik National Wildlife Refuge in northwest Alaska.
---------- To be completed after project has been approved for funding ----------	
Purpose:	Provide images of current conditions and prevalence of land cover types as a baseline for measuring future change, and to complement the existing grid-based sample photography of the region.
Format:	image 10T
Spatial reference system:	WGS84 - World Geodetic System 1984 10T
Spatial scope & scale:	Description: The study area included five units of the National Park Service's Arctic Network (Bering Land Bridge National Preserve, Cape Krusenstern National Monument, Gates of the Arctic National Park & Preserve, Kobuk Valley National Park, and Noatak National Preserve), the adjacent area of U.S. Fish and Wildlife Service's Selawik National Wildlife Refuge, and a 10-km buffer around all of these administrative units, totaling 162,868 km2 in an area spanning roughly 500 km east to west and 300 km north to south. This is also the study area for the USGS' Wildlife Potential Habitat Forecasting Framework Project (WildCast) that projects effects of climate change on future land cover and wildlife habitat (DeGange et al. 2013) Scale: NA
Temporal scope & scale:	Description: 10T Scale: 7/16-18/2013
Data description:	Form ID: NadirImageDesc
Keywords:	Photogrammetry, Arctic Network, Low Altitude Air Photo, Low Altitude Video, Northwest Alaska, Land Cover, Ecotypes
Data Process Steps:	Form ID: NadirImageProcess
Volume Estimate:	400 Giga-Bytes
Maintenance frequency:	not planned

Restrictions:	Use: It is requested that the authors, the USGS Alaska Science Center the National Park Service and the US Forest Service Pacific Northwest Research Station be cited for any subsequent publications referenced to this dataset. Please contact B.G. Marcot, US Forest Service with any questions. It is strongly recommended that careful attention be paid to the contents of the metadata file associated with these data to evaluate data set limitations, restrictions or intended use. No warranty expressed or implied is made regarding the accuracy or utility of the data and information on any other system or for general or scientific purposes, nor shall the act of distribution constitute any such warranty. Inherent in any data set used to develop graphical representations are limitations of accuracy as determined by, among others, the source, scale and resolution of the data. This disclaimer applies both to individual use of the data and information, and aggregate use with other data and information. These data and any derived products are not legal documents and are not intended to be used as such. The information contained in these data may be dynamic and could change over time. The data are not better than the original sources from which they are derived. It is the responsibility of the data user to use the data appropriately and consistent with the limitations of geospatial data in general and these data in particular. It is strongly recommended that the data described or contained herein be acquired directly from the USGS and not indirectly through some other sources which may have changed the data in some way. Neither the originators of this dataset or the USGS shall be held liable for improper or incorrect use of the data described and/or contained herein. Legal: None
Repositories for data:	Alaska Science Center Copy of metadata to reside at the National Park Service, Alaska
Exclusive use period:	Period: *none* Justification: 10T
Deployment considerations:	Distribution: Data will need to be grouped by logical groupings as download packages per discussion with DM. Web page: Would like to have informative web page with link to publication and display interpretative maps and samples of images.
Citation:	Marcot, B.G., M.T. Jorgenson, A.R. DeGange
Digital Object Identifier:	10T
Contact:	Form ID: BM

ASC Data Management Form: **Project Contact Form**

This form is to be completed for each project participants.

ID [ASC]	
Contact type:	organization
Organization role(s):	☒ funder ☐ contributor ☒ owner ☒ distributor ☒ custodian 10T
Individual role(s):	☐ PI ☐ contributor ☐ custodian 10T
Organization:	USGS Alaska Science Center
Name:	First Name: 10T Middle Name: 10T Last Name: 10T Preferred Name: 10T
Title:	10T
Address (mailing):	Address Line 1: 10T Address Line 2: 10T City: 10T, State: 10T, Zip: 10T
Phone(s):	Office: 907-786-7000 Mobile: 10T SMS: 10T
eMail address(s):	10T 10T
Web link(s):	http://alaska.usgs.gov/ 10T

ASC Data Management Form: **Project Contact Form**

This form is to be completed for each project participants.

ID [AD]	
Contact type:	individual
Organization role(s):	☐ funder ☐ contributor ☐ owner ☐ distributor ☐ custodian 10T
Individual role(s):	☐ PI ☒ contributor ☐ custodian 10T
Organization:	USGS – Alaska Science Center
Name:	First Name: Anthony Middle Name: 10T Last Name: DeGange Preferred Name: Tony
Title:	Supervisory Biologist (Retired)
Address (mailing):	Address Line 1: 4210 University Dr. Address Line 2: 10T City: Anchorage, State: AK, Zip: 99508
Phone(s):	Office: 907-786-7000 Mobile: 10T SMS: 10T
eMail address(s):	10T 10T
Web link(s):	10T 10T

ASC Data Management Form: **Project Contact Form**

This form is to be completed for each project participants.

ID [BM]	
Contact type:	individual
Organization role(s):	☐ funder ☐ contributor ☐ owner ☐ distributor ☐ custodian 10T
Individual role(s):	☒ PI ☐ contributor ☐ custodian 10T
Organization:	USDA Forest Service, Pacific Northwest Research Station
Name:	First Name: Bruce Middle Name: 10T Last Name: Marcot Preferred Name: 10T
Title:	Research Wildlife Biologist
Address (mailing):	Address Line 1: 620 SW Main St., Suite 400 Address Line 2: 10T City: Portland, State: OR, Zip: 97208
Phone(s):	Office: 503-808-2010 Mobile: 10T SMS: 10T
eMail address(s):	bmarcot@fs.fed.us 10T
Web link(s):	10T 10T

ASC Data Management Form: **Project Contact Form**

This form is to be completed for each project participants.

ID [TJ]	
Contact type:	individual
Organization role(s):	☐ funder ☐ contributor ☐ owner ☐ distributor ☐ custodian 10T
Individual role(s):	☐ PI ☒ contributor ☐ custodian 10T
Organization:	University of Alaska, Fairbanks, Dept. of Alaska Ecoscience
Name:	First Name: Torre Middle Name: 10T Last Name: Jorgensen Preferred Name: 10T
Title:	10T
Address (mailing):	Address Line 1: 10T Address Line 2: 10T City: Fairbanks, State: AK, Zip: 10T
Phone(s):	Office: 907-455-6374 Mobile: 10T SMS: 10T
eMail address(s):	ecoscience@alaska.net 10T
Web link(s):	10T 10T