

# Non-Native Plants of the Kenai Peninsula

Summary of a Two-Year Roadside Inventory

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Final Report for  
The USDA Forest Service, State and Private Forestry

By Representatives of  
The Kenai Peninsula Cooperative Weed Management Area

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<b>Contents</b>	<b>Page</b>
Introduction	2
Methods	3
Findings	5
Species encountered	5
Species characteristics	7
Discussion	8
Species of Concern	8
Recommendations	10
References	13
Appendices	14
Appendix A	14
Appendix B	15
Appendix C	21
Appendix D	26

### **List of Figures**

- Figure 1.** Survey areas for the Homer and Kenai Districts.
- Figure 2.** Yellow toadflax (*Linaria vulgaris*) in Seldovia.
- Figure 3.** Spotted knapweed (*Centaurea biebersteinii*) in Kenai.
- Figure 4.** Frequency of species encountered.
- Figure 5.** Birdsfoot trefoil (*Lotus corniculatus*) in the Kenai District.
- Figure 6.** The Pearl (*Achillea ptarmica*) a Homer District hay field.
- Figure 7.** Yellow toadflax (*Linaria vulgaris*) in Seldovia.
- Figure 8.** Bird Vetch (*Vicia cracca*) on the banks of the Kenai.
- Figure 9.** Mean canopy cover.
- Figure 10.** Orange hawkweed (*Hieracium aurantiacum*) near the Anchor.
- Figure 11.** Canada thistle (*Cirsium arvense*) on the Kenai Peninsula.
- Figure 12.** Reed Canary Grass (*Phalaris arundinacea*) on the Peninsula.
- Figure 13.** Common tansy (*Tanacetum vulgare*) in Seldovia.

## Introduction

The Kenai Peninsula Cooperative Weed Management Area (KP-CWMA) first materialized when a small group of interested local Soil and Water Conservation Districts (SWCDs) met with the US Forest Service's Forest Health Protection - State and Private Forestry Division in the summer of 2003 to begin organizing a cooperative weed management area for the Kenai Peninsula. The Alaska, Homer and Kenai Districts comprised that initial group, working with Michael Shephard from State and Private Forestry, USDA Forest Service. The Homer and Kenai Districts have taken the lead on establishing the KP-CWMA, based on CWMA efforts in other states.

The control of non-native invasive plants is of great concern in current ecosystem management. These invaders are recognized by scientists and land managers as one of the primary causes of biodiversity loss as well as threatening local ecosystem processes, plant community structure and composition. Preventing the occurrence of invasive plants is the most successful technique for managing this pervasive ecological problem and requires identifying which non-native species are present in the state and which species pose the highest risk to native ecosystems.

The Forest Service is committed to identifying the number, distribution and potential threats of non-native plants in or near Alaska's intact plant communities. To meet that end the Forest Service provided grant funds, training and expertise to the Kenai and Homer Districts to conduct an invasive plant survey of their respective jurisdictions on the Kenai Peninsula.

The Kenai Peninsula had not previously been comprehensively surveyed for invasive plants and was not represented in the Alaska Exotic Plant Information Clearinghouse (AKEPIC), Alaska's state-wide database. All field data from this survey was added to this collective database, thus increasing state and national awareness of invasive plant presence and distribution on the Kenai Peninsula. Specifically, this survey endeavored to accomplish the following objectives:

### *Survey Objectives*

1. Document occurrences of invasive plant species on the Kenai Peninsula through baseline field inventory, including a photographic record;
2. Identify areas at risk to potential invasions from known invasive plant species presently occurring in the state;
3. Identify invasive plant species with the potential to spread onto the Peninsula from adjacent regions and from distant regions through tourism along common transportation pathways;
4. Produce yearly reports to document inventory conclusions, data summaries and digital image catalogs;
5. Provide Kenai Peninsula invasive plant species data to statewide collaborators through AKEPIC program;

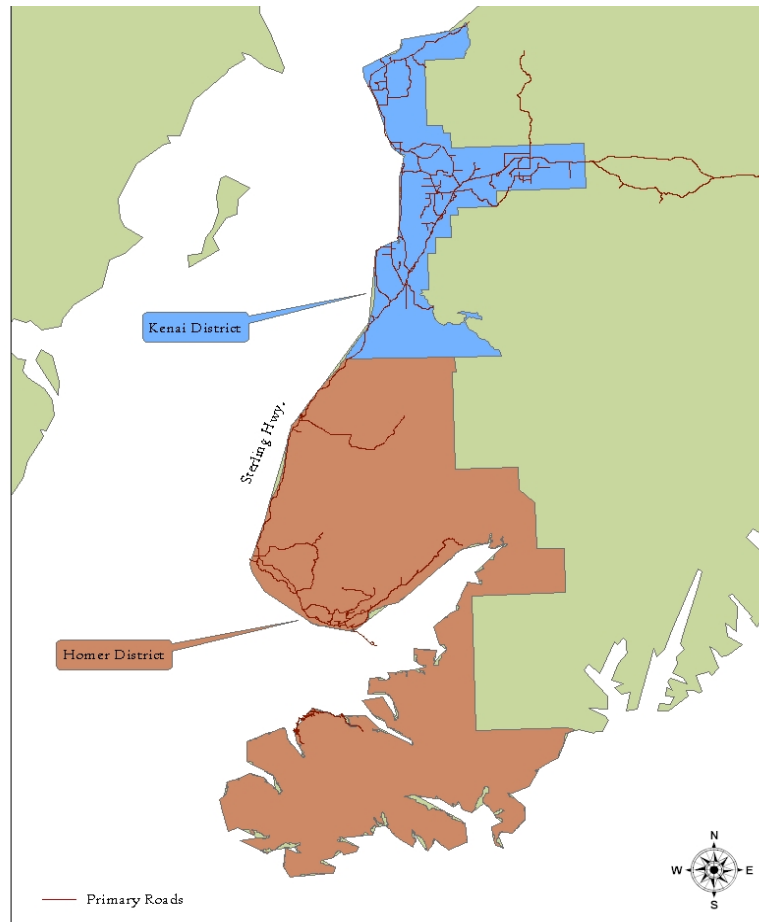
6. Obtain regional and local maps of invasive plant species distributions and abundances through the AKEPIC mapping project;
7. Use data products to develop cooperative management activities for priority invasive species occurrences across the Peninsula through the KP-CWMA.

In July 2004 field scouts from both the Kenai and Homer SWCDs were trained in AKEPIC protocols, plant identification techniques, and the invasive species likely to be found in the region. Field surveys were then commenced in and around the communities of Homer, Anchor Point, Ninilchik, Clam Gulch, Kasilof, Soldotna, and Kenai. Survey locations included waste areas, road systems, disturbed lands, agricultural lands, known infestations and reported occurrences of non-native plants.

Field work was conducted out of the Homer and Kenai District offices. Surveys in Homer began in July 2004 and concluded in September 2005. Due to an internal mix-up the Kenai District was not able to complete their field work in 2005 and have been granted an extension for project completion though 2006.

In 2005 field crews concentrated on systematic surveys of the primary and secondary roads of the Homer and Kenai District boundaries. Survey crews also continued to document newly reported and discovered exotic plant populations.

This two-year survey was structured to identify the extent and pattern of non-native plant species in one of the state's more ecologically precarious regions. Due to rapidly expanding community development and increasing tourism from locations outside the state, the Kenai Peninsula's vulnerability to invasive plants is ever increasing.



**Figure 1.** Survey areas for the Homer District shown in red and the Kenai District in blue. Primary roads shown in brown.

Survey data will provide a baseline from which informed and effective management decisions can be made on the local and regional levels, and develop cooperative management activities for priority invasive species occurrences across the Peninsula through the KP-CWMA.

## Methods

The Forest Service provided training and expertise in preparation for surveys in the Homer and Kenai Districts. Field crews were provided plant identification information, a list of potential non-native plants (Appendix B) compiled by the Alaska Natural History Program at the University of Alaska Anchorage, and techniques for following AKEPIC protocol.

In both Districts data was collected along common pathways of invasion and within known infestations. Specific characteristics were recorded to document the occurrence, specific location, size of infestation, and species composition of infested areas. A Garmin eTrex Legend GPS was used to record survey locations (NAD27 datum, decimal degrees).

Surveys covered primary and secondary road corridors, parking areas, traffic pullouts, campgrounds, parks, trails, beaches, recreational areas, agricultural and private lands (with landowner consent). Areas that included populations of non-native plants known to be controlled or maintained, such as flower beds, private gardens or agricultural lands were not inventoried unless there was a species present of which the land manager was unaware, or a species was found growing beyond the controlled area.



**Figure 2.** Yellow toadflax (*Linaria vulgaris*) on Rocky Bay Road in the Seldovia area.

The first season of inventory work focused primarily on those plants considered particularly problematic to the region and those previously undocumented in the area. Plants such as dandelion, yarrow, timothy, etc, are widely dispersed and common to disturbed areas of the Kenai Peninsula and were only recorded when discovered in undisturbed natural locations.

In 2005 the survey took a more systematic approach and concentrated on documenting all non-native plants occurring on the primary and secondary roads of the Western Kenai Peninsula. Though exact locations varied depending on the availability of parking,

survey locations were spaced every 3 miles on primary roads and between 1-3 miles on secondary roads. Exceptions to this approach occurred when traffic conditions were too dangerous, or when road construction disturbed the road-side vegetation so that surveys were useless. Additional locations were surveyed when non-native populations were evident.

Upon completion of these roadside surveys, more remote sites were surveyed. In particular, high traffic areas of the Kachemak Bay State Park and Seldovia Native Association lands were also surveyed. As KP-CWMA partners, these entities are concerned about the affects non-native plants could pose to their productive lands.

Data were collected using a standard form (Appendix A) provided in the AKEPIC manual. This form captured information about the site, location and plants surveyed. The site-specific information included the size of area surveyed, plant community type based on The Alaska Vegetation Classification (Viereck et. al), and any appropriate land uses or disturbances. Location information was comprised of latitude and longitude coordinates, elevation, precision of the GPS unit being used, and any appropriate notes about the location (such as street name, highway milepost, or other geographic indicator).

Information about the non-native plants encountered in this survey included their species (coded per the USDA Natural Resources Conservation Service PLANTS database), the acreage upon which they are present, a percentage of ground covered by foliage of that species, a stem count for small infestations, any control actions taken, the apparent aggressiveness of the species, and any applicable notes about the species, photographs taken, specimens collected or general information.

Digital images were taken of most sites to document plant communities and densities, as well as to provide a reference for future visits to the site. Select images are included in this report and a CD of all images is available at the Homer and Kenai District offices.

Voucher specimens were also collected for positive identification, inclusion to the AKNHP Herbaria and future educational purposes. Specimens were collected when

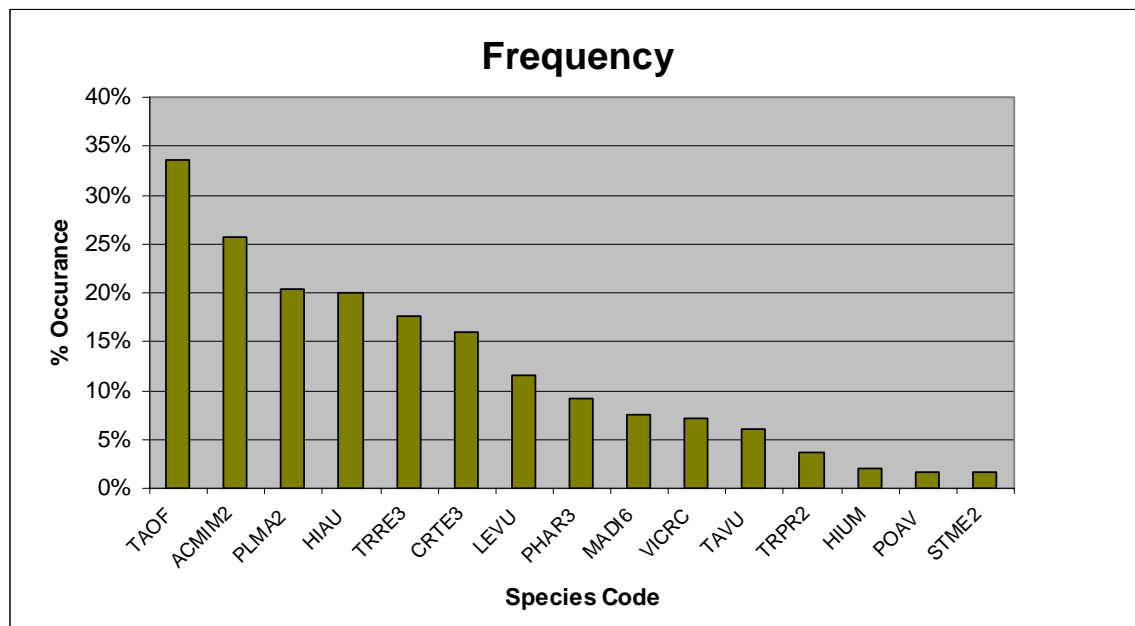


**Figure 3.** Spotted knapweed (*Centaurea biebersteinii*) found in Kenai was collected as a voucher specimen and will be on display at the Cooperative Extension office in Soldotna.

plants were unidentifiable by field crews, if the particular species had not yet been documented in the region or had not yet been provided to the herbarium. These specimens were sent to Irina Lapina and Matthew Carlson at the AKNHP for positive identification. Upon request, mounted specimens were returned to the Districts for future educational purposes.

## Findings

The survey inventoried a total of 250 sites in the Homer and Kenai Districts. The total area surveyed was just over 432 acres of roadsides, trails, parks, campgrounds, agricultural lands, parking lots, clear cuts, beaches, recreational areas and private lands of willing landowners. Of these 432 acres, 341 acres were found to have at least some amount of non-native plant species present.



**Figure 4.** Frequency of the 15 most common species encountered. See Appendix B for species codes.

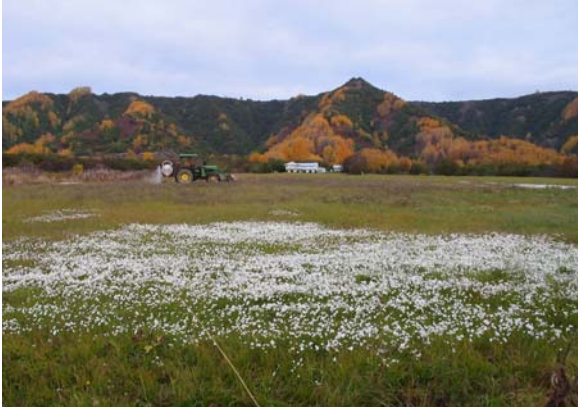
### Species encountered

Total diversity from site to site varied from no species at all up to 7 different species growing outside of controlled areas. In all 41 different non-native species were identified. Three species were not included on the list of potential non-native plants compiled by the Alaska Natural History Program and specimens or information about their presence was submitted to the Program for future inclusion.

These species included Birdsfoot trefoil (*Lotus corniculatus*) which is known to be invasive in the midwest United States. It is assumed that this plant would be planted as a forage crop in Alaska, but why it was found on roadside remains a mystery.



**Figure 5.** Birdsfoot trefoil (*Lotus corniculatus*) found on a roadside in the Kenai District.



**Figure 6.** The Pearl (*Achillea ptarmica*) has recently been found encroaching upon hay fields in the Homer District and on the borders of the cemetery in Seldovia.

The Pearl (*Achillea ptarmica*) was found in a Homer hay field out East End Road and on the margins of the Seldovia cemetery off Jackoloff Bay Road.

*Achillea* is commonly planted in landscaping for its attractive white flower clusters, so it was no surprise to find it in a cemetery that also had Orange Hawkweed (*Hieracium aurantiacum*) and Oxeye Daisy (*Leucanthemum vulgare*) present, but how it was introduced to the hay field is unknown.

Lodgepole pine (*Pinus contorta*) was identified in a clear-cut area off of Jackolof Bay Road. It is apparent that

these small trees were planted as part of a reforestation effort following logging activities. *Pinus contorta* is recorded here to document its extent at this point in time and to assist any future efforts to observe the possible spread of this non-native tree.

The non-native plants found most often were common roadside/waste ground weeds. These include common dandelion (*Taraxacum officinale*), common yarrow (*Achillea millefolium*), pineappleweed (*Matricaria discoidea*), plantain (*Plantago major*) and lots of clover both red (*Trifolium pratense*) and white (*Trifolium repens*). These species were encountered in many different soil types, terrains and vegetative communities. They were also documented on busy highways and little-used backcountry roads, in highly populated areas as well as extremely remote locations.

Less common were those plants found escaping from areas where they had been planted at some time in the past and are now using transportation corridors to spread to otherwise unpopulated areas. These include Orange Hawkweed (*Hieracium aurantiacum*), Yellow or Narrow-leaf Hawkweed (*Hieracium umbellatum*), Oxeye Daisy (*Leucanthemum vulgare*), Bird Vetch (*Vicia cracca*), Yellow toadflax (*Linaria vulgaris*) and Common tansy (*Tanacetum vulgare*). The most problematic plants with the largest variety and density were found growing in areas that are most populated. Typically, it was found that the closer to a town the greater the variety and the larger the population of invasive plants.



**Figure 7.** Yellow toadflax (*Linaria vulgaris*) is commonly found escaping from cultivated areas, like this garden in Seldovia.



Agricultural lands, landscaping and waste areas are becoming increasingly populated with fall dandelion (*Leontodon autumnalis*) on the lower Kenai Peninsula. This plant is also very common on roadsides and is well represented in the Homer District's inventory results.

Three non-native species were found in relatively isolated populations. Canada thistle (*Cirsium arvense*) was found in two separate waste areas in the Homer area. According to local knowledge, *Cirsium* showed up at the sites approximately ten years ago when it was introduced by imported hay that was stored on-site. These areas are now completely over-run by the *Cirsium* and the Homer District is currently attempting to manage these populations.



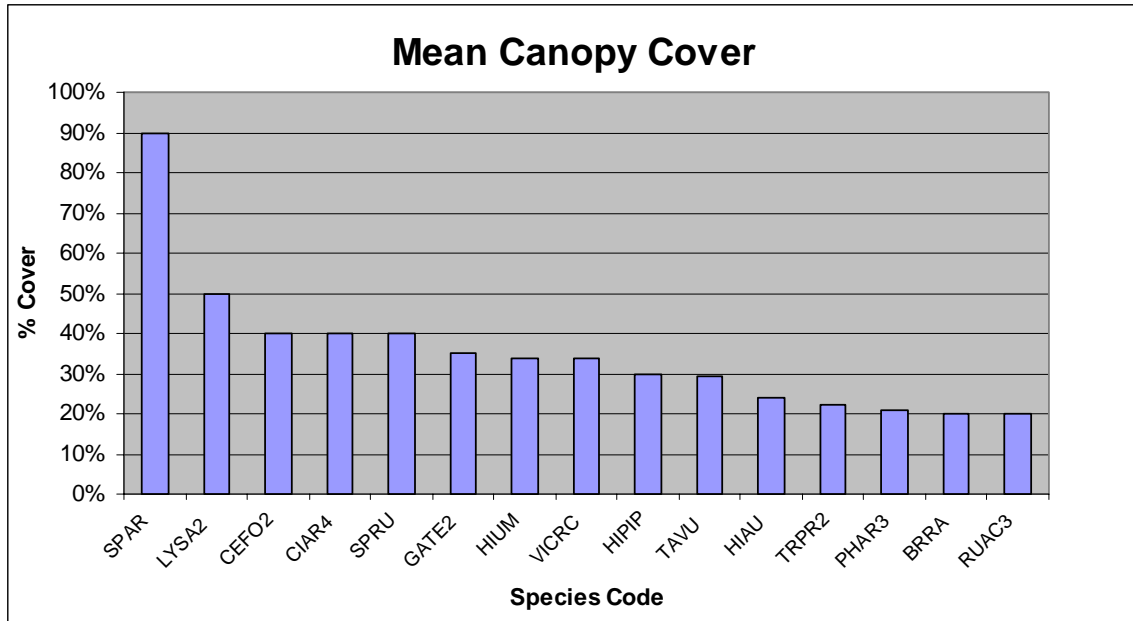
**Figure 8.** In 2005 Bird Vetch (*Vicia cracca*) was found along the Sterling Hwy on the banks of the Kenai River. The Kenai District quickly organized an effort to remove this population and will revisit the site in 2006.

Bird Vetch (*Vicia cracca*) was found growing along the Sterling Hwy. by the Kenai National Wildlife Refuge, North Skilak Loop area. Due to the isolation and location of this population, it is suspected that it was established from a seed mix used in a DOT revegetation project.

Lastly, one Spotted knapweed (*Centaurea biebersteinii*) plant was discovered growing just within the Kenai city limits (Kenai Spur Rd. and N. Gill St.). This plant was found, mapped and pulled immediately. It was approximately three feet tall has been pressed in its entirety for future educational displays. A portion of the pressed plant was also sent to ANHP for addition to the UAA herbarium.

### Species characteristics

On average percent canopy cover of all species was recorded to be 13%. High densities of 100% to 75% were documented at few locations, but eight species were found to be growing in such dense populations. Common tansy (*Tanacetum vulgare*), annual hawksbeard (*Crepis tectorum*), butter and eggs (*Linaria vulgaris*), orange hawkweed (*Hieracium aurantiacum*), Reed Canary Grass (*Phalaris arundinacea*), spurry (*Spergula arvensis*), bird vetch (*Vicia cracca*) and narrow-leaf hawkweed (*Hieracium umbellatum*) were all found to have high density canopy coverages.



**Figure 9.** Mean canopy cover of the 15 most densely populated species. See Appendix B for species codes.

Common tansy (*Tanacetum vulgare*), orange hawkweed (*Hieracium aurantiacum*), annual hawksbeard (*Crepis tectorum*), and Reed Canary Grass (*Phalaris arundinacea*) were found to be the most aggressive species in the study area. They were often documented not only in disturbed or waste areas, but also within the margins of native plant communities.

## Discussion

### **Species of Concern**

The Alaska Natural Heritage Program has established a state-wide ranking system for the potential invasiveness of non-native species in Alaska. This assessment calculates the invasiveness of individual species as a composite measure of the level of threat to natural communities, biological characteristics and dispersal ability, distribution and abundance, and feasibility of control. Threat to natural communities is determined by evaluation of impacts on native species, habitats, and ecosystem processes. The highest potential for invasiveness is ranked at a score of 100.

Spotted knapweed (*Centaurea biebersteinii*), ranked at 88, has the greatest potential for habitat destruction and land depreciation in the region. The one plant found within the Kenai city limits (Kenai Spur Rd. and N. Gill St.) raises the possibility of future occurrences due to the incredible seeding ability of this species. The massive seeding efforts of this plant can quickly change an area into a monoculture unsuitable for animal grazing or replanting without great costs to the landowner. And while many of the *Centaurea* family are grown as ornamentals, this variety has the ability to transform land into solid stands of knapweed with its alleopathic properties.

Bird Vetch (*Vicia cracca*), ranked at 75, has the ability to overwhelm herbaceous vegetation, shrubs and small trees. It produces abundant seed, and though they are rather large in size and the likelihood of broad dispersal minimal, the seed bank this plant can produce is certainly a matter of concern.

Orange hawkweed (*Hieracium aurantiacum*), ranked at 71, can colonize rapidly upon introduction. It utilizes rhizomes, stolons and seed for propagation and can develop a dense mat of rosettes effectively eliminating all other vegetation. This plant is commonly spread by unwitting gardeners and flower enthusiasts attracted to its brilliant red-orange bloom.



**Figure 10.** Orange hawkweed (*Hieracium aurantiacum*) is known to develop monocultural stands. This population near the mouth of the Anchor River is crowding out willows, alder, fireweed and other forbs.



**Figure 11.** Canada thistle (*Cirsium arvense*) is ranked high on the invasiveness scale. Fortunately it is known to be in only a handful of locations on the Kenai Peninsula.

Canada thistle (*Cirsium arvense*), ranked at 76, is listed on the “Prohibited or restricted noxious weed” list for the State of Alaska. This plant is known throughout the United States and Canada to be invasive to agricultural lands as well as naturally forested areas. Many states, provinces and even the City of Anchorage have undertaken massive efforts to simply contain or control this plant from further impacting economic interests, native vegetation and wildlife habitats. It is an aggressive, creeping perennial that is propagated from both seed and rhizomes. Though seeds are developed sparingly, 1,000 to 1,500 seeds per flowing shoot, they are feathery and can be transported long distances. In light of the dense populations found in the Homer area, this plant warrants close attention.

Reed Canary Grass (*Phalaris arundinacea*), ranked at 83, has been proven to dramatically alter the diversity and complexity of wetland vegetative communities and ecosystems in other North American regions. It has the potential to choke and shade out

previously competitive wetland plants, giving rise to tall and dense monotypic stands with thick root mats that exclude the establishment of other vegetation. Several populations of this plant were documented on or near the margins of highly productive wetlands on the Kenai Peninsula, thus raising concerns about the potential for it to encroach upon otherwise intact ecosystems.

### **Recommendations**

It is highly recommended to be watchful of garden plants that are being introduced to beautify properties. It has been proven again and again that these plants have the potential to escape controlled landscapes to eventually dominate surrounding marginal lands. This has been the case with the orange hawkweed, the Oxeye Daisy and others found in Wildflower Seed Mixes. In addition some of the Loosestrifes are being sold at local nurseries and while they are not the Purple Loosestrife (*Lythrum salicaria*) recently found in Anchorage, it would be wise to help educate the gardening public of how hard these could be to remove once established.

Orange hawkweed (*Hieracium aurantiacum*) has become a potentially serious competitor for open space in the survey area. As witnessed in the Homer District, it has successfully escaped from controlled areas and is making its way into natural vegetative communities. Given examples from other regions where *Hieracium* has been allowed to establish itself, the possibility that open areas and wildflower meadows on the Kenai Peninsula could be dominated by this plant is quite realistic. It is recommended that an all-out educational campaign, highlighting this and other garden plants, be developed and implemented. In conjunction, the KP-CWMA would be well advised to continue its efforts in removing this plant when found in or on the margins of natural areas and open spaces.

The site where the Spotted knapweed (*Centaurea biebersteinii*) plant was found should be monitored yearly to ensure that no seedlings become established in the area. Increased educational efforts would help the public understand what's at risk and how aggressive this plant can be. During this past season several people reported what they believed to be spotted knapweed being sold at a local nursery. After visiting the nursery the plant was found to be *Centaurea dealbata*, which is still considered an ornamental though a prolific self seeder. Information was given to the nurseryman on invasive and aggressive plants. It is suggested that more educational work with commercial nurseries, small plant seller operations and local greenhouses needs to be done to avoid introducing species that are known to be problematic elsewhere.

The Bird Vetch (*Vicia cracca*) targeted for weed pulls should also be a consideration for future monitoring. Many plants that have gained a foothold in the Anchorage Bowl region seem to travel down the Seward and Sterling Hwy. to appear in our area, we would be wise to keep them monitored and targeted for removal when found while their numbers are low.



**Figure 12.** Reed Canary Grass (*Phalaris arundinacea*) was found widely distributed in the survey area. Known to be particularly invasive on wetland ecosystems, this species has the potential to significantly impact the Kenai Peninsula.

Through this survey, Reed Canary Grass (*Phalaris arundinacea*) has been documented in and near wetlands that are important for wildlife habitat, recreation and water quality. *Phalaris* is known to be an aggressive non-native plant that can dominate wetland communities. Wetlands play an essential role at the landscape level by maintaining water quality, reducing flooding and erosion, and by supporting a variety of plants and wildlife, including anadromous fish. The Kenai Peninsula landscape is covered by highly complex glacial landforms over which lie extensive wetlands. Approximately 42% of the Kenai Lowlands is wetlands (Gracz, et al., unpublished data) and a widespread infestation of *Phalaris* has the potential to significantly, permanently, and irreversibly alter the composition, characteristic and quality of wetland and riparian plant communities. It would be in the KP-CWMA's best interest to control the *Phalaris* found in high-value wetlands and watch the populations on the margins very closely.

Agricultural lands of the Kenai and Homer Districts are also being impacted by increased populations of annual Hawksbeard (*Crepis tectorum*), fall dandelion (*Leontodon autumnalis*), Pineapple Weed (*Matricaria discoidea*), Shephards Purse (*Capsella rubella*), Hempnettle (*Galeopsis tetrahit*) and Canada thistle (*Cirsium arvense*). These plants will continue to affect the quality and cost of field production without a control program being in place. Many of the more problematic areas visited during this over the past two seasons were ones that had imported hay from both within Alaska and "outside". This appears to be an all too common way to import a problem species to the area. Encouraging adherence to a "Weed Free Forage" program would be beneficial to all in the long term.

The clovers, *Trifolium pratense* and *trifolium repens*, that appear to have been planted by the DOT as part of revegetation projects look like they could become a problem in some adjacent lands. It is our recommendation to establish a collaborative relationship with DOT to address concerns and provide reasonable alternatives to prevent any further introduction of aggressive non-native species in future revegetation efforts.

In summary it is suggested that the District look to remove and be watchful for the new species discovered during these surveys such as Birds foot trefoil (*Lotus corniculatus*), Spotted knapweed (*Centaurea biebersteinii*), Bird Vetch (*Vicia cracca*) and the Pearl (*Achillea ptarmica*), as well as to concentrate on controlling hard to remove species such as Canada thistle (*Cirsium arvense*) and Orange hawkweed (*Hieracium aurantiacum*). By working with other agencies that have similar goals and sharing knowledge of plant communities we can be more effective in keeping areas contained. Continued work in education of invasive and noxious species will help to get more of the public involved in community weed pulls, knowledgeable about what should and should not be planted, and with luck mobilized to create (and vote for) control ordinances for their communities and Alaska as a whole.



**Figure 13.** Common tansy (*Tanacetum vulgare*) was commonly found growing along roadsides and waste areas around Seldovia. Here it is documented in the airport parking lot.

## References

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# Appendices

## Appendix A

AKEPIC Mapping Project Inventory Field Data Sheet (2005) (\*=Required item)

\*Survey Date: \_\_\_\_/\_\_\_\_/\_\_\_\_ \*Observers: \_\_\_\_\_ \*=Required item  
*mm / dd / yyyy*  
 Observers Affiliation: (circle one) BLM NPS UAF USFS USGS CES AKNHP ARS Other  
 SCS SCWD USFWS

**A. Site Information**

\*Site Code: \_\_\_\_\_ Visit Type: Recon Monitoring Research Control Is this a Revisit: Yes No  
 \*Area Surveyed: \_\_\_\_\_ acres  
 (Note: 1/10 acre = 37ft radius, 1/2 acre = 83ft radius, 1 acre = 118ft radius)  
 Site Vegetation Community Description (Vierrick Code): \_\_\_\_\_  
 Disturbance Type (see instructions below): \_\_\_\_\_

**B. Location Information**

\*Latitude: \_\_\_\_\_ \*Longitude: \_\_\_\_\_ Elevation: \_\_\_\_\_ ft  
**\*\*Note: Datum is NAD 27 and Coordinate Format is decimal degrees (60.123456°)\*\***  
 \*Collection Method: (circle one and complete details) GPS, 15 min topo, Aerial photo, Roadmap, Other  
 Quad name \_\_\_\_\_ Quad number (i.e. A1, B2,C3, D4) \_\_\_\_\_  
 \*GPS precision \_\_\_\_\_ ft (0-5, 0-30, 0-100, 0-1000, 1000+)  
 If 15 min Topographic Map was used: Source \_\_\_\_\_ Scale \_\_\_\_\_ Date \_\_\_\_\_  
 Notes (location):  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**C. Survey Information**

*Exotic Plant Species Code (see below)	*Infested Area (acres) (see below)	*Canopy Cover (%) (see below)	Disturbance Age (Yrs.) (see below)	Stem Count (see below)	*Collection Information (see below)	Control Action (see below)	Aggressiveness (see below)

**D. Notes (species):**

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



## Appendix B

### Non-Native Plants of Alaska - May 2005 (sorted by scientific name)

This list includes many of the non-native species within Alaska, only some of which have invasive tendencies (some of these taxa will be removed in future years). Future work based on this database and other sources of information will prioritize the invasive species in Alaska. The following are the taxa currently supported within AKEPIC (originally based on data from Mike Duffy ). This list includes the Alaska state noxious and prohibited weed seed list.

*This list is under review. If you have comments or additions, please contact Michael Shephard - mshephard@fs.fed.us*

CODE	Scientific name (Hulten 1968; or Kartesz *)	Common name
ACFI	Achillea filipendulina Lam.	fernleaf yarrow
ACMIM2	Achillea millefolium L. sens. str.	common yarrow
ACPT	Achillea ptarmica L.	sneezeweed
AGCR	Agropyron cristatum L. Gaertn.	crested wheatgrass
PASM	Agropyron smithii Rydb.	western wheatgrass
AGGI2	Agrostis gigantea Roth	creeping bentgrass, red top
AGST2	Agrostis stolonifera L.	creeping bentgrass, red top
AGCA5	Agrostis tenuis Sibth.	colonial bentgrass
ALPE4	Alliaria petiolata (Bieb.) Cavara & Grande	garlic mustard
ALGE2	Alopecurus geniculatus L.	water foxtail
ALPR3	Alopecurus pratensis L.	meadow foxtail
AMRE	Amaranthus retroflexus L.	redroot pigweed
ANMA	Anaphalis margaritacea (L.) Benth.	western pearly everlasting
ANCO2	Anthemis cotula L.	mayweed, stinking chamomile
ANTI	Anthemis tinctoria L.	yellow chamomile
MIOR	Antirrhinum orontium L.	snapdragon
ARGL	Arabis glabra L. Bernh.	tower rockcress
ARDR4	Artemisia dracunculus L.	tarragon
ASPR	Asperugo procumbens L.	catchweed, mudwort
ASCI4	Astragalus cicer L. ?*	chickpea milkvetch, cicer milkvetch

AVFA	<i>Avena fatua</i> L.	wildoats
BICE	<i>Bidens cernua</i> L.	bur-marigold, nodding beggar-ticks
BRJU	<i>Brassica juncea</i> (L.) Czern.	indian mustard
BRNA	<i>Brassica napus</i> L.	rape
BRRR	<i>Brassica rapa</i> L.	field mustard
BRRAR	<i>Brassica rapa</i> L. var. <i>rapa</i>	purple-topped turnip
BRHO2	<i>Bromus hordeaceus</i> L.	soft brome
BRINI	<i>Bromus inermis</i> Leyss.	smooth brome
BRSE	<i>Bromus secalinus</i>	rye brome, cheat
BRTE	<i>Bromus tectorum</i> L.	cheatgrass, downy brome
CASES	<i>Calystegia sepium</i> (L.) R. Br. ssp. <i>sepium</i>	hedge false bindweed
CABU2	<i>Capsella bursa-pastoris</i> (L.) Medik.	shepherd's purse
CABU2	<i>Capsella rubella</i> Reut.	shepherd's purse
CAAR18	<i>Caragana arborescens</i> Lam.	Siberian peashrub
CADE9	<i>Carex deweyana</i> Schwein.	Dewey sedge
CEBI2	<i>Centaurea biebersteinii</i>	Spotted knapweed
CEFO2	<i>Cerastium fontanum</i> Baumg. ssp. <i>triviale</i> (Link) J alas	larger mouse-eared chickweed
CEGL2	<i>Cerastium glomeratum</i> Thuill.	stickt chickweed
CHALA	<i>Chenopodium album</i> L.	lamb's quarters
CHBE4	<i>Chenopodium berlandieri</i> L.	pitseed goosefoot
CIIN	<i>Cichorium intybus</i>	chicory
CIAR4	<i>Cirsium arvense</i> (L.) Scop.	Canada thistle
CIVU	<i>Cirsium vulgare</i> (Savi) Ten.	bull thistle
COAR4	<i>Convolvulus arvensis</i>	field bindweed
COCO7	<i>Cotula coronopifolia</i> L.	Brass Buttons
CRTE3	<i>Crepis tectorum</i> L.	annual hawksbeard
CYSC4	<i>Cytisus scoparius</i> (L.) Link	Scotch Broom
DAGL	<i>Dactylis glomerata</i> L.	orchard grass
DACA6	<i>Daucus carota</i> L.	Queen Anne's lace
DESO	<i>Delphinium sonnei</i> Greene	
DEEL	<i>Deschampsia elongata</i> (Hook.) Munro	slender hairgrass
DESO2	<i>Descurainia sophia</i> (L.) Webb ex Prantl	tansy mustard
DIPU	<i>Digitalis purpurea</i> L.	purple foxglove, foxglove

DRMO	<i>Dracocephalum moldavica</i> L.	Moldavian dragonhead
ELRE4	<i>Elymus repens</i> (L.) Beauv.*	quackgrass
ELSI	<i>Elymus sibiricus</i> L.	Siberian wild rye
ELTRS	<i>Elymus trachycaulus</i>	slender wheatgrass
ERGA	<i>Erucastrum gallicum</i> (Willd.) O.E. Schulz*	common dogmustard
ERCH9	<i>Erysimum cheiranthoides</i> L. subsp. <i>cheiranthoides</i>	wormseed mustard
LOAR10	<i>Festuca arundinacea</i> (Schreb.) S.J. Darbyshire	tall fescue
GABI3	<i>Galeopsis bifida</i> Boenn.	splitlip hempnettle
GATE2	<i>Galeopsis tetrahit</i> L.	brittlestem hempnettle
GEPJ2	<i>Geranium pusillum</i> L.*	small geranium
GNPA	<i>Gnaphalium palustre</i>	marsh cudweed
HEAN3	<i>Helianthus annuus</i> L.	annual (common) sunflower
HIAU	<i>Hieracium aurantiacum</i> L.	orange hawkweed
HICA10	<i>Hieracium caespitosum</i> Dumort.	meadow hawkweed
HIPI3	<i>Hieracium pilosella</i> L.	mouseear hawkweed
HIUM	<i>Hieracium umbellatum</i>	Narrow-leaf Hawkweed
HOJU	<i>Hordeum jubatum</i> L.	foxtail barley
HOMUL	<i>Hordeum murinum</i> L. spp <i>leporinum</i> (Link)	Leporinum barley
HOVU	<i>Hordeum vulgare</i> L.	common barley
HYPE	<i>Hypericum perforatum</i> L.	common St. Johnswort
HYRA3	<i>Hypochoeris radicata</i> L.	cat's-ears
IMGL	<i>Impatiens glandulifera</i>	ornamental jewelweed
LASE	<i>Lactuca serriola</i> L.	prickly lettuce
LASQ	<i>Lappula squarrosa</i>	European stickweed
LEAU2	<i>Leontodon autumnalis</i> L.	fall dandelion
LEDED	<i>Lepidium densiflorum</i>	common pepperweed
LEDE	<i>Lepidium densiflorum</i> Schrad	common peppergrass
LEVU	<i>Leucanthemum vulgare</i> Lam.*	ox-eye daisy
LEOF	<i>Levisticum officinale</i> W.D.J. Koch	garden lovage
LIPI3	<i>Linaria pinifolia</i>	pineneedle toadflax
LIVU2	<i>Linaria vulgaris</i> P. Mill.	butter and eggs
LOPEM2	<i>Lolium multiflorum</i> Lam.	Italian rye grass
LOPEP	<i>Lolium perenne</i> L.	perennial rye grass

LOTA	<i>Lonicera tatarica</i> L.	Tatarian honeysuckle
LUPOP4	<i>Lupinus polyphyllus</i> Lindl.	large-leaf lupine
LUPOP4	<i>Lupinus x pseudopolyphyllus</i> *	Kenai lupine
LYCH3	<i>Lychnis chalcedonica</i> L.	maltesecross
LYHY2	<i>Lythrum hyssopifolia</i> L.*	hyssop loosestrife
LYSA2	<i>Lythrum salicaria</i>	Purple Loosestrife
MADI6	<i>Matricaria discoidea</i> DC	pineappleweed
MESAF	<i>Medicago falcata</i> L.	yellow alfalfa
MELU	<i>Medicago lupulina</i> L.	black medic, hop clover
MEMI	<i>Medicago minima</i>	burr medic
MESAS	<i>Medicago sativa</i> L.	alfalfa
SINO	<i>Melandrium noctiflorum</i> (L.) Fries	night-flowering catchfly
MEAL12	<i>Melilotus alba</i> Medikus	white sweet clover
MEOF	<i>Melilotus officinalis</i> (L.) Lam.	yellow sweet clover
MESP3	<i>Mentha spicata</i>	spearmint
MYMU	<i>Mycelis muralis</i>	wall lettuce
MYSC	<i>Myosotis scorpioides</i> L.	true forget-me-not
MYSF2	<i>Myriophyllum spicatum</i> L. (sens. str.)*	Eurasian watermilfoil
NEPA3	<i>Neslia paniculata</i> (L.) Desv.	ball mustard
ONVI	<i>Onobrychis viciifolia</i> Scop.*	sainfoin, saintfoin
ONAC	<i>Onopordum acanthium</i>	Scotch Thistle
PANU3	<i>Papaver nudicaule</i> L.	Iceland poppy
PHAR3	<i>Phalaris arundinacea</i>	Reed Canary Grass
PHCA5	<i>Phalaris canariensis</i> L.	Canary grass
PHPR3	<i>Phleum pratense</i> L.	Timothy
		ribgrass, buckhorn, English
PLLA	<i>Plantago lanceolata</i> L.	plantain
PLMA2	<i>Plantago major</i> L. var. major	common plantain
POPRP2	<i>Poa angustifolia</i> L.	Kentucky bluegrass
POAN	<i>Poa annua</i> L.	annual bluegrass
POCO	<i>Poa compressa</i> L.	Canada bluegrass
POGL	<i>Poa glauca</i> Vahl.	glaucous bluegrass
POPA2	<i>Poa palustris</i> L.	fowl bluegrass
POPR	<i>Poa pratensis</i> L.	bluegrass

POPRI2	<i>Poa subcoerulea</i> Sm.	spreading bluegrass
POTR2	<i>Poa trivialis</i> L.	rough bluegrass
POAV	<i>Polygonum aviculare</i> L.	knotweed
POCO10	<i>Polygonum convolvulus</i> L.	black bindweed, wild buckwheat
POCU6	<i>Polygonum cuspidatum</i>	Japanese knotweed
POLA4	<i>Polygonum lapathifolium</i> L.	willow weed
POPE3	<i>Polygonum persicaria</i> L.	lady's-thumb
ARAN7	<i>Potentilla anserina</i> L.	silverweed
POGR9	<i>Potentilla gracilis</i> Dougl. ex Hook.	slender cinquefoil
PONO3	<i>Potentilla norvegica</i> L.	Norwegian cinquefoil
PRPA5	<i>Prunus padus</i> L.	European birdcherry
RAAC3	<i>Ranunculus acris</i> L.	tall buttercup
RARE3	<i>Ranunculus repens</i> L.	creeping buttercup
RASA2	<i>Raphanus sativus</i> L.	cultivated radish
ROSY	<i>Rorippa sylvestris</i> (L.) Bess.*	creeping yellowcress
RUDI2	<i>Rubus discolor</i> Weihe and Nees	Himalayan blackberry
RUAC3	<i>Rumex acetosella</i> L. ssp. <i>acetosella</i>	sheep sorrel
RUAC3	<i>Rumex acetosella</i> L. ssp. <i>angiocarpus</i> (Murb.) Murb.	sheep sorrel
RUCR	<i>Rumex crispus</i> L.	curled dock
RULO2	<i>Rumex longifolius</i> DC.	garden dock
RUOB	<i>Rumex obtusifolius</i> L.	bitter dock
SAOF4	<i>Saponaria officinalis</i> L.	bouncingbet
SCMA8	<i>Scirpus paludosus</i> A. Nels.	bayonet grass
SEJA	<i>Senecio jacobea</i> L.	tansy ragwort, stinky Willie
SEVU	<i>Senecio vulgaris</i> L.	common groundsel
SEVI4	<i>Setaria viridis</i> L. Beauv.	green bristlegrass
SIDI4	<i>Silene dioica</i> (L.) Clairville	red catchfly
SILA21	<i>Silene latifolia</i> Poir.	bladder campion
SILAA3	<i>Silene latifolia</i> Poir. ssp. <i>alba</i> (P. Mill.) Greuter & Burdet	bladder campion
SIAL5	<i>Sinapis alba</i> L.	white mustard
SIAR4	<i>Sinapsis arvensis</i> L.	charlock
SIAL2	<i>Sisymbrium altissimum</i> L.	tumbling mustard
SOAR2	<i>Sonchus arvensis</i>	Perennial Sowthistle

SOAU	<i>Sorbus aucuparia</i>	European mountain ash
SPAR	<i>Spergula arvensis</i> L.	spurry
SPRU	<i>Spergularia rubra</i> (L.) J.& K. Presl	purple sand spurry
STME2	<i>Stellaria media</i> (L.) Vill.	common chickweed
SYOF	<i>Symphytum officinale</i>	common comfrey
TAVU	<i>Tanacetum vulgare</i> L.	common tansy
TAOF	<i>Taraxacum officinale</i> Weber	common dandelion
TALA2	<i>Taraxacum scanicum</i> Dahlst.	rock dandelion
THAR5	<i>Thlaspi arvense</i> L.	pennycress
TRDU	<i>Tragopogon dubius</i> Scop.*	yellow salsify, goatsbeard
TRAU2	<i>Trifolium aureum</i> Pollich	golden clover
TRHY	<i>Trifolium hybridum</i> L.	alsike clover
TRPR2	<i>Trifolium pratense</i> L.	red clover
TRRE3	<i>Trifolium repens</i> L.	white clover
TRPE21	<i>Tripleurospermum inodorum</i> (L.) Schultz-Bip.	scentless mayweed
TRAE	<i>Triticum aestivum</i> L.	wheat
VESES	<i>Veronica serpyllifolia</i> L. subsp. <i>serpyllifolia</i>	thyme-leaf speedwell
VICRC	<i>Vicia cracca</i> L.	bird vetch, dog pea
VITR	<i>Viola tricolor</i> L.	johnny jumpup

Appendix C. Data collected during 2004-2005 field surveys in the Kenai District

Survey Dat (mm/dd/yyyy)	Observers (lastName,First,Init.)	Site Code	Area Surveyed (acres)	Latitude	Longitude	Plant Species Code	Infested Acres	Canopy Cover (%)
7/20/2004	Chumley, Janice	kpjc04001	1	60.55344	-151.22627	PHAR3	1	40%
7/20/2004	Chumley, Janice	kpjc04001	1	60.55344	-151.22627	ACMIM2	1	50%
7/20/2004	Chumley, Janice	kpjc04001	1	60.55344	-151.22627	PHPR3	1	5%
7/20/2004	Chumley, Janice	kpjc04001	1	60.55344	-151.22627	TRRE3	1	25%
9/17/2004	Chumley, Janice	kpjc04002	0.1	60.28417	-151.06936	PLMA2	0.1	5%
9/17/2004	Chumley, Janice	kpjc04002	0.1	60.28417	-151.06936	ACMIM2	0.1	50%
9/17/2004	Chumley, Janice	kpjc04002	0.1	60.28417	-151.06936	TRPR2	0.1	30%
9/18/2004	Chumley, Janice	kpjc04003	2	60.66995	-151.2988	HIAU	2	5%
9/18/2004	Chumley, Janice	kpjc04003	2	60.66995	-151.2988	LIVU2	2	1%
9/18/2004	Chumley, Janice	kpjc04004	1	60.69363	-151.38149	CRTE3	1	40%
9/18/2004	Chumley, Janice	kpjc04004	1	60.69363	-151.38149	ACMIM2	1	15%
9/18/2004	Chumley, Janice	kpjc04005	0.5	60.73301	-151.29213	HIAU	0.5	90%
9/18/2004	Chumley, Janice	kpjc04006	0.5	60.73223	-151.29489	CRTE3	0.5	50%
9/18/2004	Chumley, Janice	kpjc04007	1	60.65167	-151.35576	LEVU	1	20%
9/18/2004	Chumley, Janice	kpjc04007	1	60.65167	-151.35576	LIVU2	1	5%
9/20/2004	Chumley, Janice	kpjc04008	0.1	60.33535	-151.15466	SPRU	0.1	40%
9/20/2004	Chumley, Janice	kpjc04009	0.5	60.33511	-151.15431	SPAR	0.5	90%
9/20/2004	Chumley, Janice	kpjc04009	0.5	60.33511	-151.15431	RUAC3	0.5	30%
9/20/2004	Chumley, Janice	kpjc04009	0.5	60.33511	-151.15431	CHALA	0.5	5%
9/20/2004	Chumley, Janice	kpjc04009	0.5	60.33511	-151.15431	STME2	0.5	40%
9/20/2004	Chumley, Janice	kpjc04011	0.5	60.33482	-151.15412	GATE2	0.5	30%
9/20/2004	Chumley, Janice	kpjc04011	0.5	60.33482	-151.15412	LIVU2	0.5	1%
9/20/2004	Chumley, Janice	kpjc04011	0.5	60.33482	-151.15412	MADI6	0.5	5%
9/20/2004	Chumley, Janice	kpjc04011	0.5	60.3342	-151.15412	CABU2	0.5	10%
9/27/2004	Chumley, Janice	kpjc04012	0.1	60.55634	-151.24292	TAVU	0.1	95%
9/27/2004	Chumley, Janice	kpjc04013	5	60.51735	-151.05784	VICRC	5	35%
9/27/2004	Chumley, Janice	kpjc04014	0.1	60.66939	-151.27553	TAVU	0.1	5%
9/27/2004	Chumley, Janice	kpjc04015	5	60.49853	-151.00958	CRTE3	5	40%
9/27/2004	Chumley, Janice	kpjc04015	5	60.49853	-151.00958	TRPR2	5	20%

9/27/2004	Chumley, Janice	kpjc04016	0.5	60.4923	-151.04801	CRTE3	0.5	1%
9/27/2004	Chumley, Janice	kpjc04016	0.5	60.4923	-151.04801	TRPR2	0.5	5%
9/27/2004	Chumley, Janice	kpjc04017	2	60.48344	-151.08489	TAVU	2	10%
9/27/2004	Chumley, Janice	kpjc04018	1	60.49374	-151.07046	CRTE3	1	60%
9/27/2004	Chumley, Janice	kpjc04019	5	60.56156	-151.27228	CRTE3	5	30%
9/20/2004	Chumley, Janice	kpjc04010	5	60.33501	-151.15388	HIPIP	5	30%
10/5/2004	Chumley, Janice	kpjc04020	2	60.54181	-151.1811	LEVU	2	10%
10/5/2004	Chumley, Janice	kpjc04020	0.5	60.54181	-151.1811	LYCH3	0.01	5%
10/5/2004	Chumley, Janice	kpjc04021	0.5	60.51284	-151.08445	HIAU	0.5	20%
10/5/2004	Chumley, Janice	kpjc04022	1	60.48449	-151.06156	TAVU	0.01	30%
6/16/2005	Chumley, J.	kpjc05002	0.5	60.404760000	151.195080000	HIAU	0.5	5%
6/16/2005	Chumley, J.	kpjc05003	0.5	60.481900000	151.001890000	TRRE3	0.5	5%
6/16/2005	Chumley, J.	kpjc05004	0.01	60.469450000	151.460900000	TRRE3	0.01	5%
6/16/2005	Chumley, J.	kpjc05005	0.5	60.460790000	151.100240000	TRRE3	0.5	10%
6/16/2005	Chumley, J.	kpjc05005	0.5	60.460790000	151.100240000	TAOF	0.5	10%
6/16/2005	Chumley, J.	kpjc05005	0.5	60.460790000	151.100240000	ACMIM2	0.01	5%
6/16/2005	Chumley, J.	kpjc05006	0.5	60.447390000	151.125780000	TRRE3	0.01	20%
6/16/2005	Chumley, J.	kpjc05006	0.5	60.447390000	151.125780000	ACMIM2	0.01	5%
6/16/2005	Chumley, J.	kpjc05006	0.5	60.447390000	151.125780000	TAOF	0.01	10%
6/16/2005	Chumley, J.	kpjc05006	0.5	60.447390000	151.125780000	PLMA2	0.01	5%
6/16/2005	Chumley, J.	kpjc05006	0.5	60.447390000	151.125780000	HIUM	0.5	5%
6/27/2005	Chumley, J.	kpjc05007	0.01	60.400690000	151.143920000	TRRE3	0.01	20%
6/27/2005	Chumley, J.	kpjc05007	0.01	60.400690000	151.143920000	XXXX	0.01	10%
6/27/2005	Chumley, J.	kpjc05008	0.01	60.409880000	151.227770000	ACMIM2	0.01	1%
6/27/2005	Chumley, J.	kpjc05009	0.01	60.396970000	151.217900000	LIVU2	0.01	10%
6/27/2005	Chumley, J.	kpjc05009	0.01	60.396970000	151.217900000	TAOF	0.01	10%
6/27/2005	Chumley, J.	kpjc05010	0.5	60.390860000	151.212920000	LEVU	0.5	40%
6/27/2005	Chumley, J.	kpjc05010	0.5	60.390860000	151.212920000	LIVU2	0.5	10%
6/27/2005	Chumley, J.	kpjc05010	0.5	60.390860000	151.212920000	TRRE3	0.5	10%
6/27/2005	Chumley, J.	kpjc05011	0.5	60.362390000	151.199630000	ACMIM2	0.5	15%
6/27/2005	Chumley, J.	kpjc05011	0.5	60.362390000	151.199630000	TAOF	0.5	25%
6/27/2005	Chumley, J.	kpjc05011	0.5	60.362390000	151.199630000	LEVU	0.5	5%
6/27/2005	Chumley, J.	kpjc05012	0.01	60.340800000	151.180110000	TAOF	0.01	10%



6/27/2005	Chumley, J.	kpjc05012	0.01	60.340800000	151.180110000	ACMIM2	0.01	25%
6/27/2005	Chumley, J.	kpjc05012	0.01	60.340800000	151.180110000	GATE2	0.01	5%
6/28/2005	Chumley, J.	kpjc05013	1	60.284620000	151.048830000	CRTE3	1	90%
6/28/2005	Chumley, J.	kpjc05014	0.01	60.289910000	151.040880000	CRTE3	0.01	30%
7/12/2005	Chumley, J.	kpjc05015	0.5	60.510820000	150.172800000	BARRA	0.5	20%
7/12/2005	Chumley, J.	kpjc05015	0.5	60.510820000	150.172800000	ACMIM2	0.5	10%
7/12/2005	Chumley, J.	kpjc05015	0.5	60.510820000	150.172800000	TAOF	0.5	10%
7/12/2005	Chumley, J.	kpjc05015	0.5	60.510820000	150.172800000	CABU2	0.5	10%
7/12/2005	Chumley, J.	kpjc05016	0.01	60.528170000	150.238630000	ACMIM2	0.01	10%
7/12/2005	Chumley, J.	kpjc05016	0.01	60.528170000	150.238630000	TAOF	0.01	20%
7/12/2005	Chumley, J.	kpjc05016	0.01	60.528170000	150.238630000	PLMA2	0.01	10%
7/12/2005	Chumley, J.	kpjc05017	0.5	60.530070000	150.373550000	ACMIM2	0.5	10%
7/12/2005	Chumley, J.	kpjc05017	0.5	60.530070000	150.373550000	TAOF	0.5	10%
7/12/2005	Chumley, J.	kpjc05018	0.5	60.531810000	150.456480000	ACMIM2	0.5	10%
7/12/2005	Chumley, J.	kpjc05018	0.5	60.531810000	150.456480000	PLMA2	0.5	20%
7/12/2005	Chumley, J.	kpjc05018	0.5	60.531810000	150.456480000	MADI6	0.5	20%
7/12/2005	Chumley, J.	kpjc05019	0.5	60.525730000	150.588570000	TAOF	0.5	10%
7/12/2005	Chumley, J.	kpjc05019	0.5	60.525730000	150.588570000	ACMIM2	0.5	10%
7/12/2005	Chumley, J.	kpjc05019	0.5	60.525730000	150.588570000	TRRE3	0.5	30%
7/12/2005	Chumley, J.	kpjc05019	0.5	60.525730000	150.588570000	MADI6	0.5	20%
7/12/2005	Chumley, J.	kpjc05020	0.01	60.532660000	150.733780000	ACMIM2	0.01	2%
7/12/2005	Chumley, J.	kpjc05020	0.01	60.532660000	150.733780000	TAOF	0.01	1%
7/12/2005	Chumley, J.	kpjc05021	0.01	60.523800000	150.876680000	ACMIM2	0.01	1%
7/13/2005	Chumley, J.	kpjc05022	0.01	50.561720000	151.201950000	HIAU	0.01	50%
7/13/2005	Chumley, J.	kpjc05022	0.01	50.561720000	151.201950000	LEVU	0.01	10%
7/13/2005	Chumley, J.	kpjc05022	0.01	50.561720000	151.201950000	LYCH3	0.01	5%
7/13/2005	Chumley, J.	kpjc05022	0.01	50.561720000	151.201950000	MADI6	0.01	5%
7/13/2005	Chumley, J.	kpjc05022	0.01	50.561720000	151.201950000	RUAC3	0.01	10%
7/13/2005	Chumley, J.	kpjc05023	0.5	60.564590000	151.196450000	HIAU	0.5	25%
7/13/2005	Chumley, J.	kpjc05024	0.5	60.199910000	151.185970000	HIAU	0.5	20%
8/2/2005	Chumley, J.	kpjc05025	0.5	60.185440000	151.158520000	TRPR2	0.5	50%
8/2/2005	Chumley, J.	kpjc05026	0.5	60.203480000	151.189610000	TRPR2	0.5	40%
8/2/2005	Chumley, J.	kpjc05026	0.5	60.203480000	151.189610000	HIAU	0.5	25%

8/8/2005	Chumley, J.	kpjc05027	0.01	60.096680000	151.284520000	TAOF	0.01	20%
8/8/2005	Chumley, J.	kpjc05027	0.01	60.096680000	151.284520000	PLMA2	0.01	1%
8/8/2005	Chumley, J.	kpjc05028	0.01	60.133400000	151.243450000	STME2	0.01	5%
8/8/2005	Chumley, J.	kpjc05028	0.01	60.133400000	151.243450000	ACMIM2	0.01	5%
8/8/2005	Chumley, J.	kpjc05028	0.01	60.133400000	151.243450000	TAOF	0.01	2%
8/8/2005	Chumley, J.	kpjc05029	1	60.160511000	151.194660000	HIAU	1	25%
8/8/2005	Chumley, J.	kpjc05029	1	60.160511000	151.194660000	ACMIM2	1	10%
8/8/2005	Chumley, J.	kpjc05029	1	60.160511000	151.194660000	TRRE3	1	50%
8/8/2005	Chumley, J.	kpjc05029	1	60.160511000	151.194660000	TAOF	1	2%
8/8/2005	Chumley, J.	kpjc05029	1	60.160511000	151.194660000	LEVU	1	10%
8/8/2005	Chumley, J.	kpjc05029	1	60.160511000	151.194660000	LIVU2	1	5%
8/8/2005	Chumley, J.	kpjc05030	0.5	60.193370000	151.154280000	TRPR2	0.5	40%
8/8/2005	Chumley, J.	kpjc05030	0.5	60.193370000	151.154280000	PHPR3	0.5	20%
8/8/2005	Chumley, J.	kpjc05030	5	60.193370000	151.154280000	TAOF	5	10%
8/8/2005	Chumley, J.	kpjc05031	0.01	60.230340000	151.111590000	ACMIM2	0.01	10%
8/8/2005	Chumley, J.	kpjc05031	0.01	60.230340000	151.111590000	TRRE3	0.01	35%
8/8/2005	Chumley, J.	kpjc05031	0.01	60.230340000	151.111590000	TAOF	0.01	5%
8/8/2005	Chumley, J.	kpjc05032	0.01	60.230180000	151.111900000	LEVU	0.01	40%
8/8/2005	Chumley, J.	kpjc05033	0.5	60.258340000	151.078810000	TRRE3	0.5	40%
8/8/2005	Chumley, J.	kpjc05033	0.5	60.258340000	151.078810000	ACMIM2	0.5	15%
8/8/2005	Chumley, J.	kpjc05033	0.5	60.258340000	151.078810000	PLMA2	0.5	2%
8/10/2005	Chumley, J.	kpjc05034	0.5	60.289170000	151.043250000	VICRC	0.5	90%
8/18/2005	Chumley, J.	kpjc05035	0.5	60.336400000	151.167430000	RUCR	0.5	1%
8/18/2005	Chumley, J.	kpjc05035	0.5	60.336400000	151.167430000	PLMA2	0.5	5%
8/18/2005	Chumley, J.	kpjc05035	0.5	60.336400000	151.167430000	ACMIM2	0.5	5%
8/18/2005	Chumley, J.	kpjc05035	0.5	60.336400000	151.167430000	TAOF	0.5	10%
8/18/2005	Chumley, J.	kpjc05035	0.5	60.336400000	151.167430000	TRRE3	0.5	20%
8/18/2005	Chumley, J.	kpjc05035	0.5	60.336400000	151.167430000	MADI6	0.5	10%
8/18/2005	Chumley, J.	kpjc05035	0.5	60.336400000	151.167430000	CEBI2	0.5	1%
8/18/2005	Chumley, J.	kpjc05036	0.5	60.160200000	151.195550000	HIUM	0.5	20%
8/26/2005	Chumley, J.	kpjc05037	0.01	60.290740000	149.531620000	VICRC	0.01	75%
8/26/2005	Chumley, J.	kpjc05037	0.01	60.290740000	149.531620000	TAOF	0.01	2%
8/26/2005	Chumley, J.	kpjc05037	0.01	60.290740000	149.531620000	MADI6	0.01	5%

9/15/2005	Chumley, J.	kpjc05038	0.5	60.289170000	151.043250000	VICRC	0.5	0%
9/19/2005	Chumley, J.	kpjc05039	1	60.418890000	151.227790000	HIUM	1	50%
9/19/2005	Chumley, J.	kpjc05040	1	60.335960000	151.165090000	HIUM	1	20%
9/19/2005	Chumley, J.	kpjc05040	1	60.335960000	151.165090000	ACMIM2	1	5%
9/29/2005	Chumley, J.	kpjc05041	1	60.416360000	151.228920000	HIUM	1	75%
9/29/2005	Chumley, J.	kpjc05041	1	60.416360000	151.228920000	ACMIM2	1	5%
9/29/2005	Chumley, J.	kpjc05041	1	60.416360000	151.228920000	TAOF	1	5%
10/15/2005	Chumley, J.	kpjc05042	1	60.337590000	151.135130000	HIAU	1	30%
10/15/2005	Chumley, J.	kpjc05042	1	60.337590000	151.135130000	PLMA2	1	5%
10/15/2005	Chumley, J.	kpjc05042	1	60.337590000	151.135130000	TAOF	1	5%
10/15/2005	Chumley, J.	kpjc05042	1	60.337590000	151.135130000	TRRE3	1	20%
10/15/2005	Chumley, J.	kpjc05042	1	60.337590000	151.135130000	POAV	1	1%
6/11/2005	Chumley, J.	kpjc05043	1	59.504680000	151.486090000	HIAU	1	30%
6/11/2005	Chumley, J.	kpjc05043	1	59.504680000	151.486090000	LIVU2	1	10%
6/11/2005	Chumley, J.	kpjc05044	0.5	59.504670000	151.486110000	HIAU	0.5	60%
6/20/2005	Chumley, J.	kpjc05045	1	60.388480000	151.209100000	HIAU	1	30%
6/20/2005	Chumley, J.	kpjc05045	1	60.388480000	151.209100000	LEVU	1	30%
6/20/2005	Chumley, J.	kpjc05045	1	60.388480000	151.209100000	LIVU2	1	20%
6/20/2005	Chumley, J.	kpjc05046	0.01	60.423850000	151.231100000	HIAU	0.01	90%
7/12/2005	Chumley, J.	kpjc05047	0.5	60.485340000	150.107650000	VICRC	0.01	70%
7/13/2005	Chumley, J.	kpjc05048	0.5	60.485550000	150.089110000	VICRC	0.5	30%
7/13/2005	Chumley, J.	kpjc05049	0.5	60.485510000	150.088890000	VICRC	0.5	30%
7/13/2005	Chumley, J.	kpjc05050	0.5	50.485490000	150.088910000	VICRC	0.5	10%
7/13/2005	Chumley, J.	kpjc05051	0.5	60.484830000	150.096680000	VICRC	0.5	5%
7/13/2005	Chumley, J.	kpjc05052	0.5	60.484800000	150.096680000	VICRC	0.5	10%
7/13/2005	Chumley, J.	kpjc05053	0.01	60.484970000	150.102900000	VICRC	0.01	60%
8/10/2005	Chumley, J.	kpjc05054	0.5	60.485340000	150.107650000	VICRC	0.5	50%
8/10/2005	Chumley, J.	kpjc05055	0.5	60.485550000	150.089110000	VICRC	0.5	30%
8/10/2005	Chumley, J.	kpjc05056	0.5	60.485510000	150.088890000	VICRC	0.5	30%
8/10/2005	Chumley, J.	kpjc05057	0.5	60.485490000	150.088910000	VICRC	0.5	10%
8/10/2005	Chumley, J.	kpjc05058	0.5	60.484830000	150.096680000	VICRC	0.5	5%
8/10/2005	Chumley, J.	kpjc05059	0.5	60.484800000	150.096680000	VICRC	0.5	10%
8/10/2005	Chumley, J.	kpjc05060	0.01	60.484970000	150.102900000	VICRC	0.01	60%

Appendix D. Data collected during 2004-2005 field surveys in the Homer District

Survey Date (mm/dd/yyyy)	Observers (lastName,First,Init.)	Site Code	Area Surveyed (acres)	Latitude	Longitude	Plant Species Code	Infested Acres	Canopy Cover (%)
7/23/2004	Klausner, Hansel, L.	KPHK04-01	1.00	59.73968	-151.24059	CEFO2	0.10	40%
7/23/2004	Klausner, Hansel, L.	KPHK04-02	1.00	59.74172	-151.24809	ALPR3	0.10	10%
7/23/2004	Klausner, Hansel, L.	KPHK04-03	1.00	59.67707	-151.42221	CRTE3	1.00	1%
7/23/2004	Klausner, Hansel, L.	KPHK04-04	9.00	59.67843	-151.41690	CRTE3	9.00	25%
7/23/2004	Klausner, Hansel, L.	KPHK04-04	13.00	59.67843	-151.41690	CRTE3	13.00	10%
7/23/2004	Klausner, Hansel, L.	KPHK04-04	13.00	59.67843	-151.41690	NONE	4.00	10%
7/23/2004	Klausner, Hansel, L.	KPHK04-05	5.00	59.67709	-151.40489	CRTE3	5.00	1%
7/23/2004	Klausner, Hansel, L.	KPHK04-06	5.00	59.67694	-151.41020	CRTE3	5.00	5%
7/23/2004	Klausner, Hansel, L.	KPHK04-07	1.00	59.64725	-151.53737	HIAU	1.00	10%
7/26/2004	Klausner, Hansel, L.	KPHK04-08	0.10	59.78778	-151.08972	CABU2	0.10	10%
7/26/2004	Klausner, Hansel, L.	KPHK04-09	1.00	59.80706	-151.16200	CRTE3	1.00	10%
7/26/2004	Klausner, Hansel, L.	KPHK04-10	0.10	59.76768	-151.19495	LEVU	0.10	1%
7/26/2004	Klausner, Hansel, L.	KPHK04-11	1.00	59.75558	-151.21684	PHAR3	1.00	30%
7/26/2004	Klausner, Hansel, L.	KPHK04-12	0.10	59.72189	-151.29076	PHAR3	0.01	30%
7/28/2004	Klausner, Hansel, L.	KPHK04-13	0.50	59.75523	-151.21796	LEVU	0.50	20%
7/28/2004	Klausner, Hansel, L.	KPHK04-14	1.00	59.74706	-151.25418	LYSA2	0.01	50%
7/28/2004	Klausner, Hansel, L.	KPHK04-15	0.10	59.73508	-151.31952	LEVU	0.01	10%
7/28/2004	Klausner, Hansel, L.	KPHK04-15	0.50	59.72929	-151.31500	LEVU	0.01	10%
7/28/2004	Klausner, Hansel, L.	KPHK04-15	1.00	59.72487	-151.31506	LEVU	0.50	30%
8/2/2004	Klausner, Hansel, L.	KPHK04-16	0.50	59.69098	-151.37834	CIAR4	0.50	60%
8/6/2004	Klausner, Hansel, L.	KPHK04-17	1.00	59.67672	-151.44676	PHAR3	1	80%
8/6/2004	Klausner, Hansel, L.	KPHK04-18	1.00	59.67543	-151.44614	PHAR3	1	50%
8/6/2004	Klausner, Hansel, L.	KPHK04-19	1.00	59.66957	-151.44994	PHAR3	1	50%
8/6/2004	Klausner, Hansel, L.	KPHK04-20	0.10	59.66601	-151.45479	CRTE3	0.005	30%
8/6/2004	Klausner, Hansel, L.	KPHK04-21	0.10	59.66129	-151.47319	CRTE3	0.1	1%
8/6/2004	Klausner, Hansel, L.	KPHK04-22	0.10	59.64635	-151.53996	LIVU2	0.001	40%
8/6/2004	Klausner, Hansel, L.	KPHK04-23	1.00	59.64693	-151.53716	HIAU	1	60%
8/6/2004	Klausner, Hansel, L.	KPHK04-24	0.10	59.64769	-151.53171	LIVU2	0.01	20%
8/6/2004	Klausner, Hansel, L.	KPHK04-25	0.10	59.64841	-151.52864	LIVU2	0.01	50%

8/6/2004	Klausner, Hansel, L.	KPHK04-26	0.50	59.64440	-151.52275	CRTE3	0.01	1%
8/6/2004	Klausner, Hansel, L.	KPHK04-26	0.50	59.64440	-151.52275	TAVU	0.001	1%
8/6/2004	Klausner, Hansel, L.	KPHK04-27	1.00	59.64892	-151.52798	LIVU2	0.01	1%
8/6/2004	Klausner, Hansel, L.	KPHK04-28	1.00	59.66628	-151.50761	HIAU	0.001	1%
8/6/2004	Klausner, Hansel, L.	KPHK04-29	0.50	59.66251	-151.51224	PHAR3	0.1	50%
8/9/2004	Klausner, Hansel, L.	KPHK04-30	1.00	59.65231	-151.51247	HIAU	0.5	20%
8/9/2004	Klausner, Hansel, L.	KPHK04-31	0.10	59.64801	-151.50853	NONE	0.001	60%
8/9/2004	Klausner, Hansel, L.	KPHK04-32	0.50	59.67260	-151.50208	CRTE3	0.001	10%
8/9/2004	Klausner, Hansel, L.	KPHK04-33	0.50	59.67157	-151.50987	LIVU2	0.001	20%
8/9/2004	Klausner, Hansel, L.	KPHK04-34	1.00	59.67373	-151.51096	CRTE3	0.05	10%
8/9/2004	Klausner, Hansel, L.	KPHK04-35	0.50	59.68108	-151.54639	CRTE3	0.001	30%
8/9/2004	Klausner, Hansel, L.	KPHK04-36	0.10	59.67541	-151.55011	LEVU	0.005	30%
8/9/2004	Klausner, Hansel, L.	KPHK04-37	0.50	59.67325	-151.55827	CRTE3	0.1	1%
8/9/2004	Klausner, Hansel, L.	KPHK04-38	0.10	59.66748	-151.57170	CRTE3	0.1	20%
8/9/2004	Klausner, Hansel, L.	KPHK04-39	0.50	59.66160	-151.57771	CRTE3	0.01	10%
8/10/2004	Klausner, Hansel, L.	KPHK04-40	1.00	59.69298	-151.37866	CIAR4	1	20%
8/10/2004	Klausner, Hansel, L.	KPHK04-40	1.00	59.69298	-151.37866	LIVU2	0.001	10%
8/10/2004	Klausner, Hansel, L.	KPHK04-41	1.00	59.66547	-151.57487	CRTE3	1	60%
8/10/2004	Klausner, Hansel, L.	KPHK04-42	0.10	59.67069	-151.57985	CRTE3	0.1	1%
8/10/2004	Klausner, Hansel, L.	KPHK04-43	0.10	59.67069	-151.57985	CRTE3	0.1	1%
8/10/2004	Klausner, Hansel, L.	KPHK04-44	1.00	59.67683	-151.63622	LEVU	1	1%
8/10/2004	Klausner, Hansel, L.	KPHK04-45	1.00	59.68331	-151.62885	CRTE3	1	90%
8/10/2004	Klausner, Hansel, L.	KPHK04-46	6.00	59.68114	-151.65178	HIAU	6	70%
8/10/2004	Klausner, Hansel, L.	KPHK04-46	6.00	59.68114	-151.65178	LEVU	6	1%
8/11/2004	Klausner, Hansel, L.	KPHK04-47	0.50	59.64157	-151.54675	LIVU2	0.1	10%
8/11/2004	Klausner, Hansel, L.	KPHK04-48	0.10	59.65486	-151.62526	LIVU2	0.01	10%
8/11/2004	Klausner, Hansel, L.	KPHK04-49	1.00	59.64934	-151.59885	HIAU	0.5	50%
8/11/2004	Klausner, Hansel, L.	KPHK04-50	0.50	59.64929	-151.59987	LIVU2	0.01	1%
8/11/2004	Klausner, Hansel, L.	KPHK04-51	0.50	59.65306	-151.61597	HOJU	0.1	1%
8/11/2004	Klausner, Hansel, L.	KPHK04-52	0.10	59.67521	-151.60707	CRTE3	0.01	5%
8/11/2004	Klausner, Hansel, L.	KPHK04-53	0.10	59.67525	-151.60684	HIAU	0.1	10%
8/11/2004	Klausner, Hansel, L.	KPHK04-54	0.10	59.67535	-151.60226	HIAU	0.001	10%
8/11/2004	Klausner, Hansel, L.	KPHK04-55	0.10	59.67543	-151.60182	HIAU	0.002	80%

8/11/2004	Klausner, Hansel, L.	KPHK04-56	0.10	59.67538	-151.60313	HIAU	0.005	40%
8/16/2004	Klausner, Hansel, L.	KPHK04-57	1.00	59.72517	-151.75212	HIAU	0.5	10%
8/16/2004	Klausner, Hansel, L.	KPHK04-58	0.10	59.74906	-151.80521	CRTE3	0.05	5%
8/16/2004	Klausner, Hansel, L.	KPHK04-59	0.10	59.75240	-151.81288	CRTE3	0.1	1%
8/16/2004	Klausner, Hansel, L.	KPHK04-60	1.00	59.75586	-151.83189	HIAU	1	10%
8/16/2004	Klausner, Hansel, L.	KPHK40-60	1.00	59.75586	-151.83189	LEVU	1	1%
8/16/2004	Klausner, Hansel, L.	KPHK04-61	0.10	59.77110	-151.85651	HIAU	0.1	70%
8/16/2004	Klausner, Hansel, L.	KPHK04-62	0.10	59.78004	-151.83063	LIVU2	0.1	30%
8/16/2004	Klausner, Hansel, L.	KPHK04-62	0.10	59.78004	-151.83063	LEVU	0.1	10%
8/16/2004	Klausner, Hansel, L.	KPHK04-63	2.00	59.77372	-151.82568	NONE	1.5	30%
8/18/2004	Klausner, Hansel, L.	KPHK04-64	1.00	59.71746	-151.64420	CRTE3	0.1	1%
8/18/2004	Klausner, Hansel, L.	KPHK04-65	0.50	59.80502	-151.59669	CRTE3	0.1	20%
8/18/2004	Klausner, Hansel, L.	KPHK04-66	0.10	59.80116	-151.62549	CRTE3	0.05	5%
8/18/2004	Klausner, Hansel, L.	KPHK04-67	0.50	59.79800	-151.70494	CRTE3	0.05	1%
8/18/2004	Klausner, Hansel, L.	KPHK04-68	0.50	59.79201	-151.75026	CRTE3	0.5	5%
8/18/2004	Klausner, Hansel, L.	KPHK04-69	0.50	59.79440	-151.76437	CRTE3	0.5	5%
8/18/2004	Klausner, Hansel, L.	KPHK04-70	0.10	59.74822	-151.75291	MEAL12	0.01	10%
9/1/2004	Klausner, Hansel, L.	KPHK04-71	1.00	60.14284	-151.51083	PHAR3	1	20%
9/1/2004	Klausner, Hansel, L.	KPHK04-72	0.1	60.13924	-151.51117	LIVU2	0.05	10%
9/1/2004	Klausner, Hansel, L.	KPHK04-73	2	60.13188	-151.53545	LEVU	2	1%
9/1/2004	Klausner, Hansel, L.	KPHK04-73	2	60.13188	-151.53545	LIVU2	2	5%
9/1/2004	Klausner, Hansel, L.	KPHK04-74	0.5	60.13041	-151.53601	LIVU2	0.05	50%
9/1/2004	Klausner, Hansel, L.	KPHK04-75	1	60.12420	-151.54868	PHAR3	0.5	5%
9/1/2004	Klausner, Hansel, L.	KPHK04-76	0.5	60.12220	-151.54755	LEVU	0.5	10%
9/2/2004	Klausner, Hansel, L.	KPHK04-77	0.5	60.05234	-151.66656	HOJU	0.5	5%
9/2/2004	Klausner, Hansel, L.	KPHK04-77	0.5	60.05234	-151.66656	CRTE3	0.5	1%
9/2/2004	Klausner, Hansel, L.	KPHK04-78	0.1	60.04956	-151.66418	LIVU2	0.001	90%
9/2/2004	Klausner, Hansel, L.	KPHK04-79	0.1	60.04031	-151.65225	LIVU2	0.05	5%
9/2/2004	Klausner, Hansel, L.	KPHK04-79	0.1	60.04031	-151.65225	LEVU	0.05	1%
9/2/2004	Klausner, Hansel, L.	KPHK04-80	0.1	60.02169	-151.32324	CRTE3	0.001	1%
9/2/2004	Klausner, Hansel, L.	KPHK04-81	0.1	60.04568	-151.29504	LIVU2	0.0001	1%
9/3/2004	Klausner, Hansel, L.	KPHK04-82	1	60.03727	-151.67517	HIAU	0.05	10%
9/3/2004	Klausner, Hansel, L.	KPHK04-83	0.1	60.01797	-151.67706	PHAR3	0.05	40%

9/3/2004	Klausner, Hansel, L.	KPHK04-84	0.005	60.01408	-151.69699	LEVU	0.005	30%
9/3/2004	Klausner, Hansel, L.	KPHK04-85	0.1	59.64630	-151.52336	CRTE3	0.05	10%
9/3/2004	Klausner, Hansel, L.	KPHK04-86	0.1	59.64617	-151.52370	CRTE3	0.05	1%
7/1/2005	Klausner, Hansel	KPHK05-01	5	59.56131	-151.19269	TAOF	1	1%
7/1/2005	Klausner, Hansel	KPHK05-02	5	59.56089	-151.23343	TAOF	1	1%
7/1/2005	Klausner, Hansel	KPHK05-03	1	59.54519	-151.19548	TAOF	0.5	10%
7/1/2005	Klausner, Hansel	KPHK05-03	1	59.54519	-151.19548	PLMA2	0.5	5%
7/1/2005	Klausner, Hansel	KPHK05-04	1	59.54103	-151.19648	PLMA2	0.5	1%
7/2/2005	Klausner, Hansel	KPHK05-05	1	59.53837	-151.19290	TAOF	0.001	10%
7/2/2005	Klausner, Hansel	KPHK05-06	0.5	59.52697	-151.16990	TAOF	0.001	10%
7/2/2005	Klausner, Hansel	KPHK05-07	0.5	59.52594	-151.15687	PLMA2	0.01	5%
7/3/2005	Klausner, Hansel	KPHK05-08	1	59.53808	-151.13464	PHPR3	0.001	5%
7/3/2005	Klausner, Hansel	KPHK05-08	1	59.54830	-151.14743	TAOF	0.01	5%
7/4/2005	Klausner, Hansel	KPHK05-09	10	59.59851	-151.24735	LEAU2	0.01	1%
7/4/2005	Klausner, Hansel	KPHK05-10	5	59.59739	-151.22265	TAOF	0.01	10%
7/4/2005	Klausner, Hansel	KPHK05-11	5	59.59229	-151.24078	TAOF	0.1	1%
7/4/2005	Klausner, Hansel	KPHK05-12	10	59.59166	-151.26570	TAOF	1	1%
7/5/2005	Klausner, Hansel	KPHK05-13	1	59.46576	-150.45411	ACMIM2	0.5	10%
7/5/2005	Klausner, Hansel	KPHK05-13	1	59.46576	-150.45411	TAOF	0.5	1%
7/5/2005	Klausner, Hansel	KPHK05-14	1	59.43773	-150.39537	ACMIM2	0.25	5%
7/5/2005	Klausner, Hansel	KPHK05-15	1	59.41919	-150.42577	TAOF	0.01	1%
7/6/2005	Klausner, Hansel	KPHK05-16	0.5	59.47497	-150.09142	TAOF	0.5	20%
7/6/2005	Klausner, Hansel	KPHK05-16	0.5	59.47497	-150.09142	TRRE3	0.5	10%
7/6/2005	Klausner, Hansel	KPHK05-17	0.5	59.46543	-150.10673	TAOF	0.5	15%
7/6/2005	Klausner, Hansel	KPHK05-17	0.5	59.46543	-150.10673	TRRE3	0.5	5%
7/6/2005	Klausner, Hansel	KPHK05-17	0.5	59.46543	-150.10673	PHPR3	0.001	1%
7/6/2005	Klausner, Hansel	KPHK05-18	0.5	59.45322	-150.13004	TAOF	0.5	5%
7/6/2005	Klausner, Hansel	KPHK05-18	0.5	59.45322	-150.13004	TRRE3	0.01	1%
7/6/2005	Klausner, Hansel	KPHK05-18	0.5	59.45322	-150.13004	ACMIM2	0.01	1%
7/6/2005	Klausner, Hansel	KPHK05-18	0.5	59.45322	-150.13004	PHPR3	0.01	1%
7/6/2005	Klausner, Hansel	KPHK05-19	0.5	59.44652	-151.15464	TAOF	0.5	2%
7/6/2005	Klausner, Hansel	KPHK05-19	0.5	59.44652	-151.15464	ACMIM2	0.5	5%
7/6/2005	Klausner, Hansel	KPHK05-19	0.5	59.44652	-151.15464	TRRE3	0.5	1%

7/6/2005	Klausner, Hansel	KPHK05-19	0.5	59.44652	-151.15464	PHPR3	0.5	1%
7/6/2005	Klausner, Hansel	KPHK05-19	0.5	59.44652	-151.15464	MADI6	0.5	1%
7/6/2005	Klausner, Hansel	KPHK05-20	0.5	59.43330	-151.17411	ACMIM2	0.5	5%
7/6/2005	Klausner, Hansel	KPHK05-20	0.5	59.43330	-151.17411	MADI6	0.5	1%
7/6/2005	Klausner, Hansel	KPHK05-20	0.5	59.43330	-151.17411	TAOF	0.5	5%
7/6/2005	Klausner, Hansel	KPHK05-20	0.5	59.43330	-151.17411	TRRE3	0.5	5%
7/6/2005	Klausner, Hansel	KPHK05-21	0.5	59.42645	-151.20259	MADI6	0.5	20%
7/6/2005	Klausner, Hansel	KPHK05-21	0.5	59.42645	-151.20259	TRRE3	0.5	5%
7/6/2005	Klausner, Hansel	KPHK05-21	0.5	59.42645	-151.20259	TAOF	0.5	5%
7/6/2005	Klausner, Hansel	KPHK05-21	0.5	59.42645	-151.20259	PLMA2	0.5	1%
7/27/2005	Klausner, Hansel	KPHK05-22	1	59.81295	-151.82903	TAOF	1	1%
7/27/2005	Klausner, Hansel	KPHK05-22	1	59.81295	-151.82903	ACMIM2	1	1%
7/27/2005	Klausner, Hansel	KPHK05-22	1	59.81295	-151.82903	PLMA2	0.01	10%
7/27/2005	Klausner, Hansel	KPHK05-23	1	59.81555	-151.82742	HIAU	0.01	30%
7/27/2005	Klausner, Hansel	KPHK05-24	1	59.87908	-151.78711	TAOF	1	1%
7/27/2005	Klausner, Hansel	KPHK05-24	1	59.87908	-151.78711	ACMIM2	1	1%
7/27/2005	Klausner, Hansel	KPHK05-25	1	59.93983	-151.73607	TAOF	1	5%
7/27/2005	Klausner, Hansel	KPHK05-25	1	59.93983	-151.73607	ACMIM2	1	1%
7/27/2005	Klausner, Hansel	KPHK05-26	1	60.01321	-151.71008	ACMIM2	1	1%
7/27/2005	Klausner, Hansel	KPHK05-26	1	60.01321	-151.71008	TAOF	1	1%
7/27/2005	Klausner, Hansel	KPHK05-27	1	60.06617	-151.64258	TRRE3	1	25%
7/27/2005	Klausner, Hansel	KPHK05-27	1	60.06617	-151.64258	MADI6	1	1%
7/27/2005	Klausner, Hansel	KPHK05-27	1	60.06617	-151.64258	TAOF	1	1%
7/27/2005	Klausner, Hansel	KPHK05-27	1	60.06617	-151.64258	ACMIM2	1	5%
7/27/2005	Klausner, Hansel	KPHK05-28	1	60.11952	-151.55376	TAOF	1	1%
7/27/2005	Klausner, Hansel	KPHK05-28	1	60.11952	-151.55376	ACMIM2	1	1%
7/27/2005	Klausner, Hansel	KPHK05-29	1	60.16819	-151.55376	TRRE3	1	20%
7/27/2005	Klausner, Hansel	KPHK05-29	1	60.16819	-151.55376	ACMIM2	1	1%
7/27/2005	Klausner, Hansel	KPHK05-29	1	60.16819	-151.55376	TAOF	1	5%
7/27/2005	Klausner, Hansel	KPHK05-29	1	60.16819	-151.55376	MADI6	1	1%
7/27/2005	Klausner, Hansel	KPHK05-30	1	60.09599	-151.60567	LEVU	1	10%
7/28/2005	Klausner, Hansel	KPHK05-31	1	59.67929	-151.65625	HIAU	1	25%
7/28/2005	Klausner, Hansel	KPHK05-31	1	59.67929	-151.65625	TRHY	0.5	1%



7/28/2005	Klausner, Hansel	KPHK05-31	1	59.67929	-151.65625	TAOF	1	1%
7/28/2005	Klausner, Hansel	KPHK05-31	1	59.67929	-151.65625	TRRE3	1	1%
7/28/2005	Klausner, Hansel	KPHK05-32	0.5	59.68114	-151.61919	ACMIM2	0.5	10%
7/28/2005	Klausner, Hansel	KPHK05-32	0.5	59.68114	-151.61919	TRRE3	0.5	1%
7/28/2005	Klausner, Hansel	KPHK05-32	0.5	59.68114	-151.61919	TAOF	0.5	5%
7/28/2005	Klausner, Hansel	KPHK05-33	0.5	59.66693	-151.58220	HIAU	0.01	30%
7/28/2005	Klausner, Hansel	KPHK05-33	0.5	59.66693	-151.58220	LEAU2	0.01	5%
7/28/2005	Klausner, Hansel	KPHK05-33	0.5	59.66693	-151.58220	TAOF	0.5	5%
7/28/2005	Klausner, Hansel	KPHK05-34	5	59.66585	-151.58347	HIAU	5	10%
7/28/2005	Klausner, Hansel	KPHK05-34	5	59.66585	-151.58347	LEAU2	0.01	1%
7/28/2005	Klausner, Hansel	KPHK05-34	5	59.66585	-151.58347	TAOF	5	1%
7/28/2005	Klausner, Hansel	KPHK05-35	0.5	59.66634	-151.53268	TAOF	0.5	5%
7/28/2005	Klausner, Hansel	KPHK05-35	0.5	59.66634	-151.53268	TRRE3	0.5	10%
7/28/2005	Klausner, Hansel	KPHK05-35	0.5	59.66634	-151.53268	ACMIM2	0.5	1%
7/28/2005	Klausner, Hansel	KPHK05-36	0.5	59.67682	-151.48257	TAOF	0.5	1%
7/28/2005	Klausner, Hansel	KPHK05-36	0.5	59.67682	-151.48257	ACMIM2	0.5	1%
7/28/2005	Klausner, Hansel	KPHK05-37	0.5	59.69074	-151.44334	TAOF	0.5	20%
7/28/2005	Klausner, Hansel	KPHK05-37	0.5	59.69074	-151.44334	ACMIM2	0.5	5%
7/28/2005	Klausner, Hansel	KPHK05-37	0.5	59.69074	-151.44334	TRRE3	0.5	10%
7/28/2005	Klausner, Hansel	KPHK05-38	0.5	59.70832	-151.41313	TAOF	0.5	5%
7/28/2005	Klausner, Hansel	KPHK05-38	0.5	59.70832	-151.41313	ACMIM2	0.5	5%
7/28/2005	Klausner, Hansel	KPHK05-38	0.5	59.70832	-151.41313	HOJU	0.5	1%
7/28/2005	Klausner, Hansel	KPHK05-38	0.5	59.70832	-151.41313	TRRE3	0.5	1%
8/5/2005	Klausner, Hansel	KPHK05-39	1	59.44344	-151.70290	TAOF	1	5%
8/5/2005	Klausner, Hansel	KPHK05-39	1	59.44344	-151.70290	LEVU	1	1%
8/5/2005	Klausner, Hansel	KPHK05-39	1	59.44344	-151.70290	ACMIM2	1	1%
8/5/2005	Klausner, Hansel	KPHK05-39	1	59.44344	-151.70290	TRRE3	1	5%
8/5/2005	Klausner, Hansel	KPHK05-39	1	59.44344	-151.70290	HIAU	1	1%
8/5/2005	Klausner, Hansel	KPHK05-39	1	59.44344	-151.70290	PLMA2	1	1%
8/5/2005	Klausner, Hansel	KPHK05-40	0.1	59.44262	-151.70174	HIAU	0.1	25%
8/5/2005	Klausner, Hansel	KPHK05-40	0.1	59.44262	-151.70174	TAOF	0.1	5%
8/5/2005	Klausner, Hansel	KPHK05-40	0.1	59.44262	-151.70174	ACMIM2	0.1	1%
8/5/2005	Klausner, Hansel	KPHK05-40	0.1	59.44262	-151.70174	TRRE3	0.1	1%

8/5/2005	Klausner, Hansel	KPHK05-40	0.1	59.44262	-151.70174	TAVU	0.1	1%
8/5/2005	Klausner, Hansel	KPHK05-41	0.5	59.43803	-151.70461	TAOF	0.5	10%
8/5/2005	Klausner, Hansel	KPHK05-41	0.5	59.43803	-151.70461	TRRE3	0.5	1%
8/5/2005	Klausner, Hansel	KPHK05-41	0.5	59.43803	-151.70461	PLMA2	0.5	1%
8/5/2005	Klausner, Hansel	KPHK05-42	0.5	59.43684	-151.71016	TAOF	0.5	1%
8/5/2005	Klausner, Hansel	KPHK05-42	0.5	59.43684	-151.71016	MADI6	0.5	1%
8/5/2005	Klausner, Hansel	KPHK05-42	0.5	59.43684	-151.71016	PLMA2	0.5	1%
8/5/2005	Klausner, Hansel	KPHK05-42	0.5	59.43684	-151.71016	ACMIM2	0.5	5%
8/5/2005	Klausner, Hansel	KPHK05-42	0.5	59.43684	-151.71016	HIAU	0.5	1%
8/5/2005	Klausner, Hansel	KPHK05-43	0.5	59.43848	-151.71472	TAVU	0.5	1%
8/5/2005	Klausner, Hansel	KPHK05-43	0.5	59.43848	-151.71472	HIAU	0.5	1%
8/5/2005	Klausner, Hansel	KPHK05-43	0.5	59.43848	-151.71472	TRPR2	0.5	1%
8/5/2005	Klausner, Hansel	KPHK05-43	0.5	59.43848	-151.71472	TAOF	0.5	1%
8/5/2005	Klausner, Hansel	KPHK05-43	0.5	59.43848	-151.71472	MADI6	0.5	1%
8/5/2005	Klausner, Hansel	KPHK05-43	0.5	59.43848	-151.71472	LIPI3	0.5	5%
8/5/2005	Klausner, Hansel	KPHK05-44	0.5	59.43987	-151.71701	HIAU	0.5	60%
8/5/2005	Klausner, Hansel	KPHK05-44	0.5	59.43987	-151.71701	TAVU	0.5	5%
8/5/2005	Klausner, Hansel	KPHK05-44	0.5	59.43987	-151.71701	MADI6	0.5	1%
8/5/2005	Klausner, Hansel	KPHK05-44	0.5	59.43987	-151.71701	TAOF	0.5	5%
8/5/2005	Klausner, Hansel	KPHK05-45	0.5	59.44369	-151.71656	PLMA2	0.5	1%
8/5/2005	Klausner, Hansel	KPHK05-45	0.5	59.44369	-151.71656	TAOF	0.5	10%
8/5/2005	Klausner, Hansel	KPHK05-45	0.5	59.44369	-151.71656	MADI6	0.5	1%
8/5/2005	Klausner, Hansel	KPHK05-45	0.5	59.44369	-151.71656	TRRE3	0.5	1%
8/6/2005	Klausner, Hansel	KPHK05-46	0.1	59.43663	-151.71222	TAVU	0.1	40%
8/6/2005	Klausner, Hansel	KPHK05-46	0.1	59.43663	-151.71222	TAOF	0.1	5%
8/6/2005	Klausner, Hansel	KPHK05-46	0.1	59.43663	-151.71222	ACMIM2	0.1	1%
8/6/2005	Klausner, Hansel	KPHK05-46	0.1	59.43663	-151.71222	HIAU	0.1	1%
8/6/2005	Klausner, Hansel	KPHK05-47	0.5	59.44509	-151.70824	HIAU	0.5	20%
8/6/2005	Klausner, Hansel	KPHK05-47	0.5	59.44509	-151.70824	TAOF	0.5	10%
8/6/2005	Klausner, Hansel	KPHK05-47	0.5	59.44509	-151.70824	ACMIM2	0.5	5%
8/6/2005	Klausner, Hansel	KPHK05-47	0.5	59.44509	-151.70824	XXXX	0.5	1%
8/6/2005	Klausner, Hansel	KPHK05-47	0.5	59.44509	-151.70824	TRPR2	0.5	15%
8/6/2005	Klausner, Hansel	KPHK05-47	0.5	59.44509	-151.70824	LEVU	0.5	1%

8/6/2005	Klausner, Hansel	KPHK05-48	0.5	59.45146	-151.70398	TRRE3	0.5	10%
8/6/2005	Klausner, Hansel	KPHK05-48	0.5	59.45146	-151.70398	TAOF	0.5	5%
8/6/2005	Klausner, Hansel	KPHK05-48	0.5	59.45146	-151.70398	ACMIM2	0.5	1%
8/6/2005	Klausner, Hansel	KPHK05-48	0.5	59.45146	-151.70398	PLMA2	0.5	1%
8/6/2005	Klausner, Hansel	KPHK05-49	0.5	59.45856	-151.70233	TAOF	0.5	15%
8/6/2005	Klausner, Hansel	KPHK05-49	0.5	59.45856	-151.70233	TRRE3	0.5	5%
8/6/2005	Klausner, Hansel	KPHK05-49	0.5	59.45856	-151.70233	PLMA2	0.5	5%
8/6/2005	Klausner, Hansel	KPHK05-49	0.5	59.45856	-151.70233	LEVU	0.5	1%
8/6/2005	Klausner, Hansel	KPHK05-49	0.5	59.45856	-151.70233	ACMIM2	0.5	1%
8/6/2005	Klausner, Hansel	KPHK05-49	0.5	59.45856	-151.70233	HIAU	0.5	1%
8/6/2005	Klausner, Hansel	KPHK05-50	0.5	59.46126	-151.70552	LEVU	0.5	10%
8/6/2005	Klausner, Hansel	KPHK05-50	0.5	59.46126	-151.70552	TRRE3	0.5	5%
8/6/2005	Klausner, Hansel	KPHK05-50	0.5	59.46126	-151.70552	TAOF	0.5	5%
8/6/2005	Klausner, Hansel	KPHK05-50	0.5	59.46126	-151.70552	ACMIM2	0.5	1%
8/6/2005	Klausner, Hansel	KPHK05-50	0.5	59.46126	-151.70552	PLMA2	0.5	1%
8/6/2005	Klausner, Hansel	KPHK05-50	0.5	59.46126	-151.70552	TRPR2	0.5	1%
8/6/2005	Klausner, Hansel	KPHK05-50	0.5	59.46126	-151.70552	HIAU	0.5	1%
8/6/2005	Klausner, Hansel	KPHK05-51	0.5	59.46316	-151.69913	TRRE3	0.5	5%
8/6/2005	Klausner, Hansel	KPHK05-51	0.5	59.46316	-151.69913	TAOF	0.5	5%
8/6/2005	Klausner, Hansel	KPHK05-51	0.5	59.46316	-151.69913	LEVU	0.5	1%
8/6/2005	Klausner, Hansel	KPHK05-51	0.5	59.46316	-151.69913	ACMIM2	0.5	1%
8/6/2005	Klausner, Hansel	KPHK05-51	0.5	59.46316	-151.69913	PLMA2	0.5	1%
8/6/2005	Klausner, Hansel	KPHK05-51	0.5	59.46316	-151.69913	PHPR3	0.5	1%
8/6/2005	Klausner, Hansel	KPHK05-52	0.5	59.46094	-151.69034	TAOF	0.5	1%
8/6/2005	Klausner, Hansel	KPHK05-52	0.5	59.46094	-151.69034	ACMIM2	0.5	1%
8/6/2005	Klausner, Hansel	KPHK05-52	0.5	59.46094	-151.69034	PLMA2	0.5	1%
8/6/2005	Klausner, Hansel	KPHK05-52	0.5	59.46094	-151.69034	HIAU	0.5	1%
8/6/2005	Klausner, Hansel	KPHK05-52	0.5	59.46094	-151.69034	TRRE3	0.5	1%
8/6/2005	Klausner, Hansel	KPHK05-53	0.5	59.46343	-151.68161	PLMA2	0.5	5%
8/6/2005	Klausner, Hansel	KPHK05-53	0.5	59.46343	-151.68161	TAOF	0.5	5%
8/6/2005	Klausner, Hansel	KPHK05-53	0.5	59.46343	-151.68161	TRRE3	0.5	1%
8/6/2005	Klausner, Hansel	KPHK05-53	0.5	59.46343	-151.68161	HIAU	0.5	1%
8/9/2005	Klausner, Hansel	KPHK05-54	0.5	59.46674	-151.66882	TAOF	0.5	10%

8/9/2005	Klausner, Hansel	KPHK05-54	0.5	59.46674	-151.66882	ACMIM2	0.5	1%
8/9/2005	Klausner, Hansel	KPHK05-54	0.5	59.46674	-151.66882	PLMA2	0.5	1%
8/9/2005	Klausner, Hansel	KPHK05-55	2	59.46923	-151.65552	TAOF	2	5%
8/9/2005	Klausner, Hansel	KPHK05-55	2	59.46923	-151.65552	ACMIM2	2	1%
8/9/2005	Klausner, Hansel	KPHK05-55	2	59.46923	-151.65552	PLMA2	2	5%
8/9/2005	Klausner, Hansel	KPHK05-55	2	59.46923	-151.65552	TRRE3	2	1%
8/9/2005	Klausner, Hansel	KPHK05-55	0.2	59.46923	-151.65552	HIAU	0.2	5%
8/9/2005	Klausner, Hansel	KPHK05-56	0.5	59.47432	-151.64546	PLMA2	0.5	1%
8/9/2005	Klausner, Hansel	KPHK05-56	0.5	59.47432	-151.64546	TAOF	0.5	5%
8/9/2005	Klausner, Hansel	KPHK05-56	0.5	59.47432	-151.64546	ACMIM2	0.5	1%
8/9/2005	Klausner, Hansel	KPHK05-56	0.5	59.47432	-151.64546	HIAU	0.5	1%
8/9/2005	Klausner, Hansel	KPHK05-57	0.5	59.47655	-151.64221	HIAU	0.5	5%
8/9/2005	Klausner, Hansel	KPHK05-57	0.5	59.47655	-151.64221	TRRE3	0.5	1%
8/9/2005	Klausner, Hansel	KPHK05-57	0.5	59.47655	-151.64221	PLMA2	0.5	1%
8/9/2005	Klausner, Hansel	KPHK05-57	0.5	59.47655	-151.64221	ACMIM2	0.5	1%
8/9/2005	Klausner, Hansel	KPHK05-58	0.5	59.47552	-151.63512	PLMA2	0.5	1%
8/9/2005	Klausner, Hansel	KPHK05-58	0.5	59.47552	-151.63512	TAOF	0.5	5%
8/9/2005	Klausner, Hansel	KPHK05-58	0.5	59.47552	-151.63512	TRRE3	0.5	1%
8/9/2005	Klausner, Hansel	KPHK05-58	0.5	59.47552	-151.63512	PHPR3	0.5	1%
8/9/2005	Klausner, Hansel	KPHK05-59	0.5	59.47485	-151.62140	TAOF	0.5	5%
8/9/2005	Klausner, Hansel	KPHK05-59	0.5	59.47485	-151.62140	PLMA2	0.5	1%
8/10/2005	Klausner, Hansel	KPHK05-60	0.5	59.43660	-151.70692	TRRE3	0.5	5%
8/10/2005	Klausner, Hansel	KPHK05-60	0.5	59.43660	-151.70692	TAOF	0.5	5%
8/10/2005	Klausner, Hansel	KPHK05-60	0.5	59.43660	-151.70692	ACMIM2	0.5	5%
8/10/2005	Klausner, Hansel	KPHK05-60	0.5	59.43660	-151.70692	STME2	0.5	1%
8/10/2005	Klausner, Hansel	KPHK05-60	0.5	59.43660	-151.70692	LIPI3	0.5	1%
8/10/2005	Klausner, Hansel	KPHK05-60	0.5	59.43660	-151.70692	HIAU	0.5	1%
8/10/2005	Klausner, Hansel	KPHK05-61	0.5	59.42944	-151.69962	TAOF	0.5	5%
8/10/2005	Klausner, Hansel	KPHK05-61	0.5	59.42944	-151.69962	PLMA2	0.5	1%
8/10/2005	Klausner, Hansel	KPHK05-61	0.5	59.42944	-151.69962	STME2	0.5	1%
8/10/2005	Klausner, Hansel	KPHK05-62	0.5	59.42337	-151.69732	PLMA2	0.5	10%
8/10/2005	Klausner, Hansel	KPHK05-62	0.5	59.42337	-151.69732	TAOF	0.5	5%
8/10/2005	Klausner, Hansel	KPHK05-62	0.5	59.42337	-151.69732	ACMIM2	0.5	1%

8/10/2005	Klausner, Hansel	KPHK05-63	0.5	59.41687	-151.69493	PLMA2	0.5	5%
8/10/2005	Klausner, Hansel	KPHK05-63	0.5	59.41687	-151.69493	TAOF	0.5	5%
8/10/2005	Klausner, Hansel	KPHK05-63	0.5	59.41687	-151.69493	HIAU	0.5	5%
8/10/2005	Klausner, Hansel	KPHK05-64	0.5	59.41436	-151.68515	PLMA2	0.5	6%
8/10/2005	Klausner, Hansel	KPHK05-64	0.5	59.41436	-151.68515	TRRE3	0.5	5%
8/10/2005	Klausner, Hansel	KPHK05-64	0.5	59.41436	-151.68515	TAOF	0.5	5%
8/10/2005	Klausner, Hansel	KPHK05-64	0.5	59.41436	-151.68515	MADI6	0.5	1%
8/10/2005	Klausner, Hansel	KPHK05-64	0.5	59.41436	-151.68515	TAVU	0.01	100%
8/10/2005	Klausner, Hansel	KPHK05-64	0.5	59.41436	-151.68515	HIAU	0.5	10%
8/23/2005	Klausner, Hansel	KPHK05-65	0.5	59.47494	-151.60536	PLMA2	0.5	5%
8/23/2005	Klausner, Hansel	KPHK05-65	0.5	59.47494	-151.60536	TAOF	0.5	5%
8/23/2005	Klausner, Hansel	KPHK05-65	0.5	59.47494	-151.60536	TRRE3	0.5	1%
8/23/2005	Klausner, Hansel	KPHK05-65	0.5	59.47494	-151.60536	MADI6	0.5	1%
8/23/2005	Klausner, Hansel	KPHK05-66	1	59.47823	-151.59294	ACMIM2	1	1%
8/23/2005	Klausner, Hansel	KPHK05-66	1	59.47823	-151.59294	PLMA2	1	5%
8/23/2005	Klausner, Hansel	KPHK05-66	1	59.47823	-151.59294	POAV	1	1%
8/23/2005	Klausner, Hansel	KPHK05-66	1	59.47823	-151.59294	TAOF	1	5%
8/23/2005	Klausner, Hansel	KPHK05-66	1	59.47823	-151.59294	PHAR3	1	1%
8/23/2005	Klausner, Hansel	KPHK05-66	1	59.47823	-151.59294	MADI6	1	1%
8/23/2005	Klausner, Hansel	KPHK05-67	0.5	59.47053	-151.58124	PLMA2	0.5	5%
8/23/2005	Klausner, Hansel	KPHK05-67	0.5	59.47053	-151.58124	TAOF	0.5	5%
8/23/2005	Klausner, Hansel	KPHK05-68	0.5	59.46652	-151.57050	TRRE3	0.5	1%
8/23/2005	Klausner, Hansel	KPHK05-68	0.5	59.46652	-151.57050	TAOF	0.5	1%
8/23/2005	Klausner, Hansel	KPHK05-68	0.5	59.46652	-151.57050	PLMA2	0.5	1%
8/23/2005	Klausner, Hansel	KPHK05-69	0.5	59.46592	-151.55846	ACMIM2	0.5	3%
8/23/2005	Klausner, Hansel	KPHK05-69	0.5	59.46592	-151.55846	RUCR	0.5	1%
8/23/2005	Klausner, Hansel	KPHK05-69	0.5	59.46592	-151.55846	TAOF	0.5	1%
8/23/2005	Klausner, Hansel	KPHK05-69	0.5	59.46592	-151.55846	PHPR3	0.5	1%
8/23/2005	Klausner, Hansel	KPHK05-69	0.5	59.46592	-151.55846	POPRP2	0.5	1%
8/23/2005	Klausner, Hansel	KPHK05-69	0.5	59.46592	-151.55846	PLMA2	0.5	1%
8/23/2005	Klausner, Hansel	KPHK05-70	1	59.46780	-151.54785	TAOF	1	1%
8/23/2005	Klausner, Hansel	KPHK05-70	1	59.46780	-151.54785	PLMA2	1	5%
8/23/2005	Klausner, Hansel	KPHK05-70	1	59.46780	-151.54785	ACMIM2	1	1%

8/23/2005	Klausner, Hansel	KPHK05-70	1	59.46780	-151.54785	POPRP2	1	1%
8/23/2005	Klausner, Hansel	KPHK05-71	0.5	59.46957	-151.54192	TAOF	0.5	1%
8/23/2005	Klausner, Hansel	KPHK05-71	0.5	59.46957	-151.54192	PLMA2	0.5	1%
8/23/2005	Klausner, Hansel	KPHK05-72	1	59.46563	-151.53810	TAOF	1	10%
8/23/2005	Klausner, Hansel	KPHK05-72	1	59.46563	-151.53810	ACMIM2	1	1%
8/23/2005	Klausner, Hansel	KPHK05-72	1	59.46563	-151.53810	PLMA2	1	5%
8/23/2005	Klausner, Hansel	KPHK05-72	1	59.46563	-151.53810	POAV	1	1%
8/23/2005	Klausner, Hansel	KPHK05-72	1	59.46563	-151.53810	MADI6	1	1%
8/23/2005	Klausner, Hansel	KPHK05-73	0.25	59.44454	-151.48177	LEVU	0.25	10%
8/23/2005	Klausner, Hansel	KPHK05-73	0.25	59.44454	-151.48177	ACMIM2	0.25	5%
8/23/2005	Klausner, Hansel	KPHK05-73	0.25	59.44454	-151.48177	TAOF	0.25	5%
8/23/2005	Klausner, Hansel	KPHK05-73	0.25	59.44454	-151.48177	PLMA2	0.25	5%
8/23/2005	Klausner, Hansel	KPHK05-74	1	59.44564	-151.48410	XXXX	1	10%
8/23/2005	Klausner, Hansel	KPHK05-74	1	59.44564	-151.48410	PLMA2	1	5%
8/23/2005	Klausner, Hansel	KPHK05-74	1	59.44564	-151.48410	TAOF	1	5%
8/23/2005	Klausner, Hansel	KPHK05-74	1	59.44564	-151.48410	ACMIM2	1	1%
8/23/2005	Klausner, Hansel	KPHK05-75	0.25	59.48656	-151.48680	PHAR3	0.25	30%
8/23/2005	Klausner, Hansel	KPHK05-75	0.25	59.48656	-151.48680	TAOF	0.25	1%
8/23/2005	Klausner, Hansel	KPHK05-75	0.25	59.48656	-151.48680	PLMA2	0.25	1%
8/23/2005	Klausner, Hansel	KPHK05-75	0.25	59.48656	-151.48680	XXXX	0.25	5%
8/23/2005	Klausner, Hansel	KPHK05-75	0.25	59.48656	-151.48680	ACMIM2	0.25	1%
8/23/2005	Klausner, Hansel	KPHK05-76	1	59.44872	-151.51529	PHAR3	1	20%
8/23/2005	Klausner, Hansel	KPHK05-76	1	59.44872	-151.51529	PLMA2	1	1%
8/23/2005	Klausner, Hansel	KPHK05-76	1	59.44872	-151.51529	TAOF	1	1%
8/25/2005	Klausner, Hansel	KPHK05-77	0.25	59.42694	-151.69696	TAVU	0.1	10%
8/25/2005	Klausner, Hansel	KPHK05-77	0.25	59.42694	-151.69696	PLMA2	0.1	5%
8/25/2005	Klausner, Hansel	KPHK05-77	0.25	59.42694	-151.69696	TAOF	0.1	5%
8/25/2005	Klausner, Hansel	KPHK05-78	0.25	59.41692	-151.69395	TAVU	0.25	1%
8/25/2005	Klausner, Hansel	KPHK05-78	0.25	59.41692	-151.69395	PLMA2	0.25	5%
8/25/2005	Klausner, Hansel	KPHK05-78	0.25	59.41692	-151.69395	TAOF	0.25	1%
8/25/2005	Klausner, Hansel	KPHK05-78	0.25	59.41692	-151.69395	ACMIM2	0.25	1%
8/25/2005	Klausner, Hansel	KPHK05-79	0.25	59.41618	-151.69061	TAVU	0.01	80%
8/25/2005	Klausner, Hansel	KPHK05-79	0.25	59.41618	-151.69061	TAOF	0.25	5%

8/25/2005	Klausner, Hansel	KPHK05-79	0.25	59.41618	-151.69061	PLMA2	0.25	5%
8/25/2005	Klausner, Hansel	KPHK05-79	0.25	59.41618	-151.69061	PHPR3	0.25	1%
8/25/2005	Klausner, Hansel	KPHK05-80	0.25	59.41585	-151.68980	TAVU	0.01	60%
8/25/2005	Klausner, Hansel	KPHK05-80	0.25	59.41585	-151.68980	TAOF	0.25	5%
8/25/2005	Klausner, Hansel	KPHK05-80	0.25	59.41585	-151.68980	PLMA2	0.25	5%
8/25/2005	Klausner, Hansel	KPHK05-81	0.5	59.40965	-151.69144	TAOF	0.5	1%
8/25/2005	Klausner, Hansel	KPHK05-81	0.5	59.40965	-151.69144	PLMA2	0.5	1%
8/25/2005	Klausner, Hansel	KPHK05-82	0.5	59.40315	-151.68860	PLMA2	0.5	10%
8/25/2005	Klausner, Hansel	KPHK05-82	0.5	59.40315	-151.68860	ACMIM2	0.5	5%
8/25/2005	Klausner, Hansel	KPHK05-82	0.5	59.40315	-151.68860	TRRE3	0.5	10%
8/25/2005	Klausner, Hansel	KPHK05-82	0.5	59.40315	-151.68860	TAOF	0.5	5%
8/25/2005	Klausner, Hansel	KPHK05-82	0.5	59.40315	-151.68860	HIAU	0.5	1%
8/25/2005	Klausner, Hansel	KPHK05-82	0.5	59.40315	-151.68860	TAVU	0.5	1%
8/25/2005	Klausner, Hansel	KPHK05-82	0.5	59.40315	-151.68860	POAV	0.5	1%