

INVASIVE SPECIES IMPACT ON THE DEPARTMENT OF DEFENSE

**By
Alfred Cofrancesco**

**2004 Department of Defense
Conservation Conference**



US Army Corps
of Engineers



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- **Do we really have any problems?**
- **Where are the problems?**
- **How extensive are they?**
- **Where is the greatest impact to DOD?**
- **Who has responsibility?**



Areas examined:

- **Training**
- **Operations**
- **Military Movement**



Military Training



Salt Cedar



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Salt Cedar/Tamarisk Management Methods

- **Mechanical + Chemical + Biological**
- **Problem ---- salt content in the soil**
- **Revegetation may be required and it is costly and difficult**



Team Tamarisk

March 2004 – Albuquerque, NM



**Congressional Bills
for Salt Cedar**

HR 2707

S 1516

**General Provisions
\$100,000,000 over
5yrs to western states**



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Arundo donax



Since 1995 Camp Pendleton has participated in “Team Arundo” a systematic control program to manage this plant species



Costly to Manage -- Millions of Dollars

Yellow Starthistle



Integrated management procedures (fire, herbicides, biological) enabled training lands to be returned to a useful state

Before



After



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FHL 20,000 Acres Infested

Treatment Methods

Prescription Burning
\$1/ acre



Chemical
\$40/acre



20,000 Acres

Revegetation
\$500-\$2000/ acre



Biological
\$3/acre ?



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Application for 1000 Acres

Most sites

Burning + Chemical + Biological

$$1000 \times \$1 + 1000 \times \$40 + 1000 \times \$3 = \$44,000$$

Some sites

Burning + Chemical + Biological + Revegetation

$$1000 \times \$1 + 1000 \times \$40 + 1000 \times \$3 + 1000 \times 500 = \$544,000$$

**In a survey for Legacy over 150 plant species
were identified by the services as being problems
at installations.**



Training Exercises

- **Tandem Thrust U.S. & Australia**

Exercise commander was stopped from entry until the ship was cleared (3-4 days) - Cost \$?

- **Roving Sands 2001 -- U.S. & Germany**

German ships were stopped from off loading at Beaumont, Texas – returned to Germany - Cost \$?



Operations



Ballast Water

New Rules effective 27 Sept



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Threatened and Endangered Species



Purple amole inflorescence© 2002
Margo Bors

Juvenile arroyo toad

– Photo by Jackie Hancock, FHL Biologist



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- **The cost to comply with the regulations for ballast water are not known.**
- **Other costs related to invasive species are hard to determine because they are contained under operational costs.**



Movement



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Stopped the movement of Six C-17's --- 1999

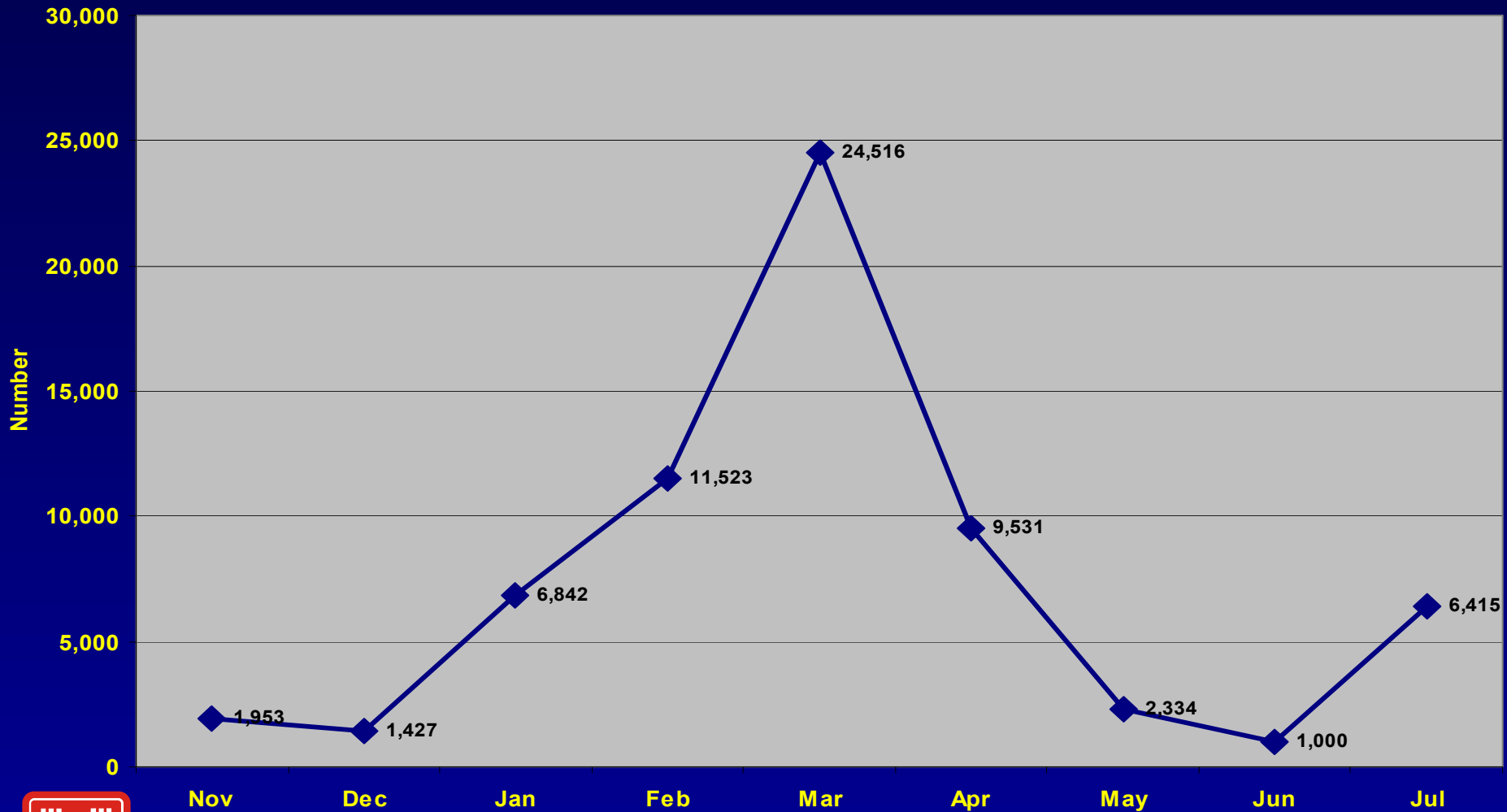


Over a Nine Month Period the following levels of Personnel and Material were Shipped out of Kuwait

Personnel --	228,393
Vehicles --	65,541
Conexes --	7,385
Containers --	9,857
Packages --	275,915



Monthly Breakdown on Vehicles Processed



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21 4 2004

Inspection Process



How Much Time Is Devoted to Cleaning?



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Cleaning Times



14 to 24 Hours

4 to 14 Hours



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Cleaning Time Estimates

November --- 1,953 Vehicles Were Cleaned

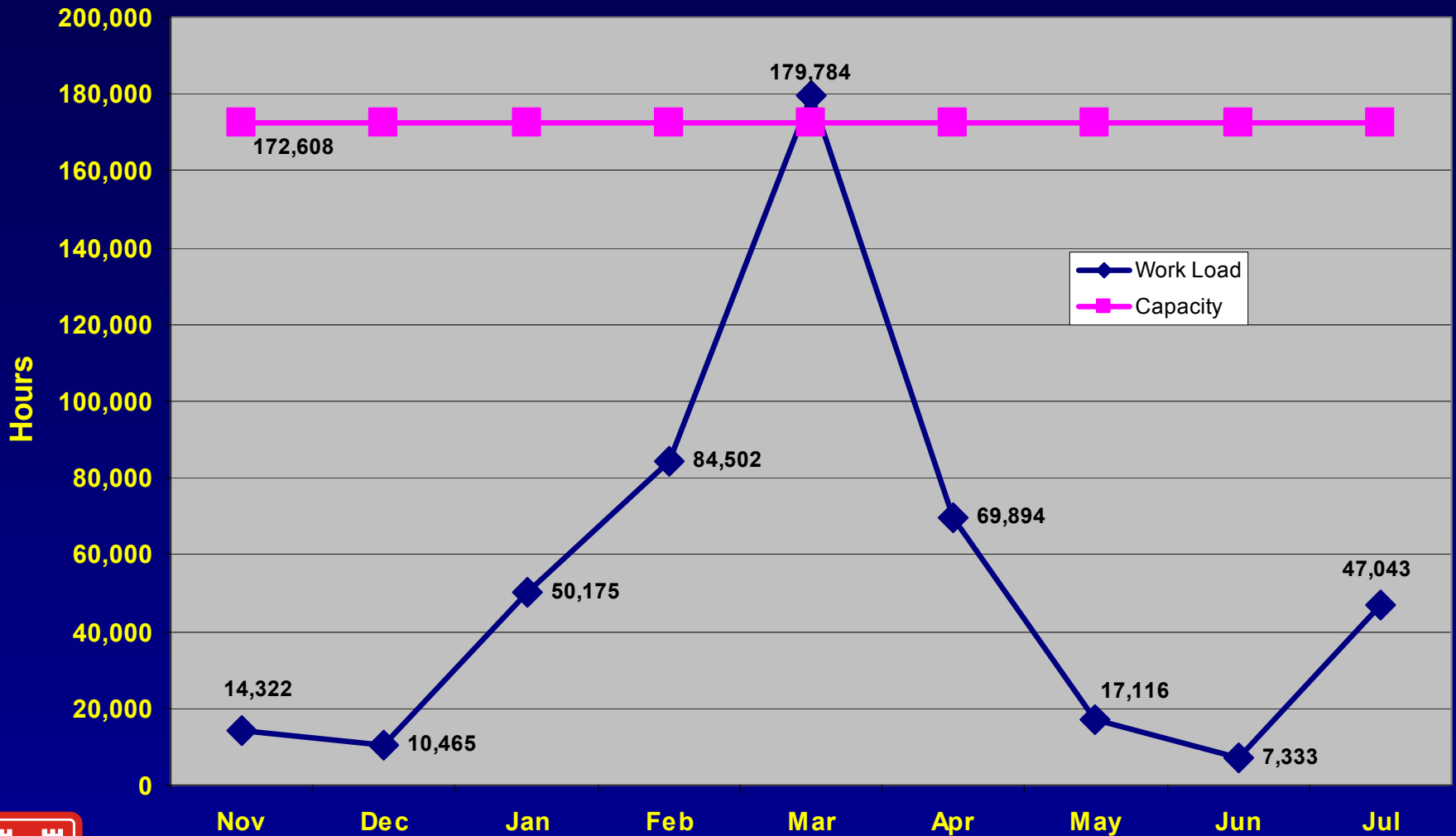
November Vehicles 1,953	Cleaning Times Estimated	Total Time
1/3 of Total Vehicles -- 651	14 hours	9,114 hours
2/3 of Total Vehicles -- 1302	4 hours	5,208 hours
Total 1,953		14,322 hours



Month	Vehicles	1/3--14hr	2/3 – 4 hr	Total Time Hr
Nov	1,953	9,114	5,208	14,322
Dec	1,427	6,659	3,805	10,465
Jan	6,842	31,929	18,245	50,175
Feb	11,523	53,774	30,728	84,502
Mar	24,516	114,408	65,376	179,784
Apr	9,531	44,478	25,416	69,894
May	2,334	10,892	6,224	17,116
Jun	1,000	4,667	2,667	7,333
Jul	6,415	29,937	17,107	47,043
Total	65541	305,858	174,776	480,634



Work Load With 232 Points & 24 hrs.



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Month	Total Hours	Labor Cost – 2 people @ 5/Hr	Labor Cost – 2 people @ 10/Hr
Nov	14,322	\$143,220	\$286,440
Dec	10,465	\$104,647	\$209,294
Jan	50,175	\$501,747	\$1,003,494
Feb	84,502	\$845,020	\$1,690,040
Mar	179,784	\$1,797,840	\$3,595,680
Apr	69,894	\$698,940	\$1,397,880
May	17,116	\$171,160	\$342,320
Jun	7,333	\$73,333	\$146,666
Jul	47,043	\$470,433	\$940,866
Total	480,634	\$4,806,340	\$9,612,680



Cost of Vehicle Washing and Inspection (9 Months)

Cost for Washing	\$4,806,340	\$9,612,68
Inspection Force- - 430 Personnel @ \$20,000/Yr.	\$6,450,000	\$6,450,000
Total Cost	\$13,206,340	\$16,062,680



What are the Cleaning Cost?



Personal equipment



Containers



Aircraft



Why do we have to Clean Equipment?

**Protect the United States from the
Introduction of Invasive Species!!!**

- **Pathogens that attack crops**
- **Animals that feed on vegetation**
- **Organisms that disrupt the Ecology**



Natural Resource Mangers

**What impact does dirty
equipment have on you?**



**Dirty
Equipment**



**Carries
Invasive
Species**

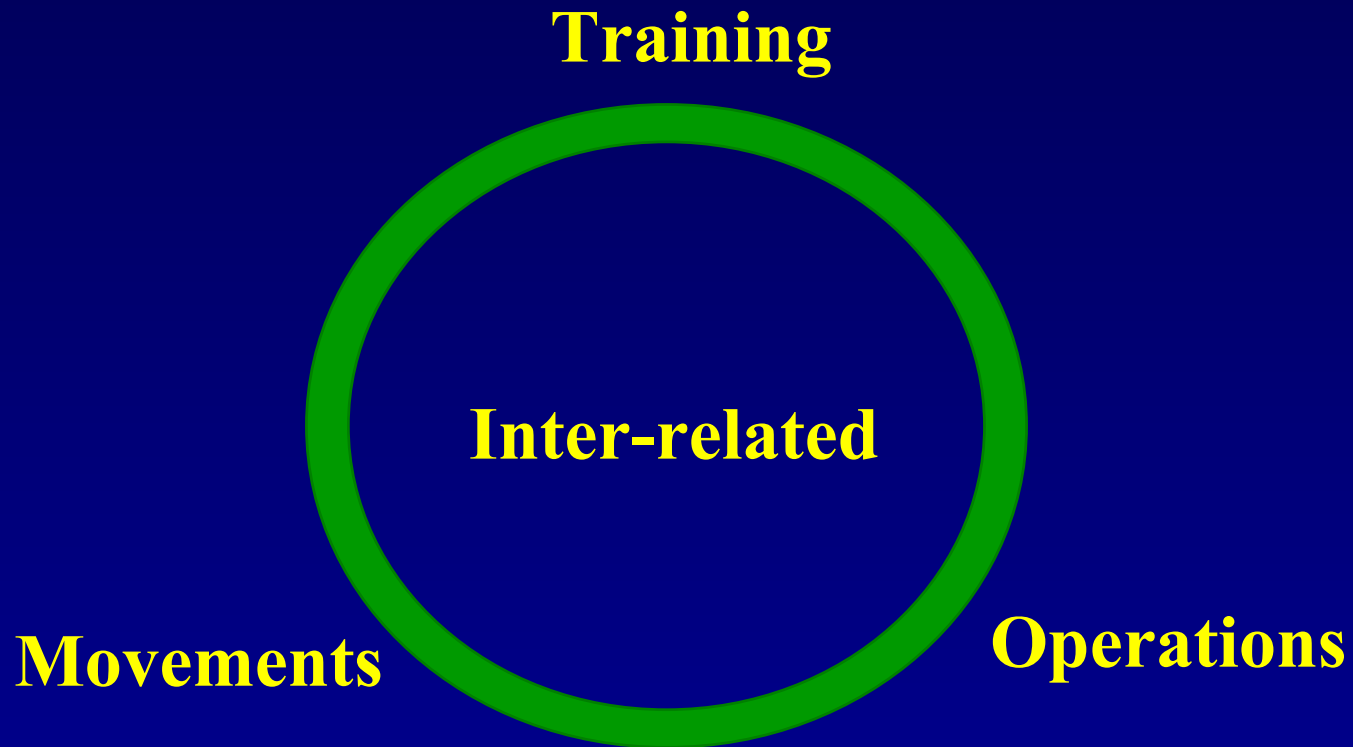


**Long Term
Problems**



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Invasive Species



- **Do we really have any problems?**

YES!!

- **Where are the problems?**

Training, Operations & Movement

- **How extensive are they?**

Very Extensive

- **Where is the greatest impact to DOD?**

?? Movement – Training - Operations

- **Who has responsibility?**

Unit Commander



Our Mission



Support The Troops



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