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PROCEEDINGS OF THE THIRTY-SECOND CONFERENCE ON THE DESIGN OF EXPERIMENTS IN ARMY RESEARCH DEVELOPMENT AND TESTING



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STATISTICAL EVALUATION OF DESERT
INDIVIDUAL CAMOUFLAGE COVERS (ICC)
BY GROUND OBSERVERS

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ABSTRACT

The ICC is a personal camouflage net for soldiers which will be useful for patrols, snipers, and ambush situations. This study determined whether the ICC should have large or small Hogan incisions, and what color(s) best blended with the desert backgrounds. Ten U.S. Marines and two civilians subjectively evaluated seventy-four ICCs (thirty-seven different colors half large and half small Hogan incisions) at five desert sites. The ICCs were ranked in groups of six, selecting four at a time, to reduce the number to the final six colors with associated incisions. The final six were subjected to paired comparison rankings which overcomes the problem of inconsistency of judgements given by the same observer. The data was analyzed statistically to determine preferred color with associated incision, establish confidence limits, and color grouping for each site and across all sites.

1.0 SECTION 1 - INTRODUCTION

The Countersurveillance and Deception Division was tasked by FORSCOM in early 1986 to develop the individual camouflage cover (ICC) for desert, woodland, and snow environments. The ICC is a small cloth cover, 5' x 7', which will weigh about 10-14 ounces, and be able to fit into a battle dress uniform pocket when not being used. It will deny the detection of a prone soldier in an ambush situation, or when on a surveillance, long-range patrol situation. The purpose of this study was twofold. The task first was to determine if a small or large Hogan garnish incision was best. The second task was to determine the best desert color to accompany the incision. Five sites were selected in the desert southwest, and the ICCs were evaluated by ground observers as to how well they blended with the desert backgrounds.

2.0 SECTION 2 - PROCEDURE

2.1 Test ICCs.

There were a total of thirty-seven variations of desert colors for this study. The nucleus of these colors was taken from the Saudi Arabian net palette study. These original colors were tested in the deserts of Saudi Arabia^{2/} and the U.S. desert southwest. Additional colors were obtained through modification. Each of thirty-seven colors were painted on seventy-four vinyl-coated sheets, 5' x 7', which were then incised with either the small or large Hogan incision. Thus, there was a total of seventy-four vinyl-coated ICCs - thirty-seven small Hogans and thirty-seven large Hogans.

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Distribution/	
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2.2 Test Sites.

Five sites were used to evaluate the ICCs. Two of the sites were in the Yuma, Arizona area, two at Anza Borrego State Park, California, and one at Jean Lake, near Las Vegas, Nevada. Both sites at Anza Borrego State Park were sandy with small stones. Vegetation was very sparse. Yuma site #1 was very sandy with some vegetation, while Yuma site #2 was on Ogilby Road and was rocky with very sparse vegetation. The Jean Lake site contained moderate vegetation with rocks, and was located on a hillside.

2.3 Test Subjects.

The test subjects consisted of ten enlisted U.S. Marine Corps personnel from Camp Pendleton, California, and two civilians from the Belvoir Research, Development, and Engineering Center, Fort Belvoir, Virginia. All personnel had corrected 20/20 vision and normal color vision. No observations were made with sunglasses.

2.4 Data Generation.

The seventy-four Hogan incised ICCs were randomly assigned to groups of six each. The four that best blended with the desert environment, in terms of color and texture, were selected and put aside for additional evaluations. This process continued until the original seventy-four ICCs were reduced to the six best. The best six ICCs were then shown in all possible pairs - fifteen, with the best ICC for each pair chosen for ability to blend with the desert. The number of times the individual ICC was judged to be the best was tabulated and subjected to data analysis.

3.0 SECTION 3 - RESULTS

The ICCs were evaluated at each of the five sites to determine which colors best blended with the desert environment. Section 2.4 describes how the best six ICCs were selected for each site. Table 1 shows the top six colors for each of the five sites.

TABLE 1
Summary of the Best Six Desert ICCs for Each Site

Colors	Site				
	Yuma Site 1	Yuma Site 2	Jean Lake	Anza Borrego Site 1	Anza Borrego Site 2
P6-S			X		
W-S	X	X		X	
XI-S	X	X			X
XI-L	X	X	X		
12-S				X	
21-S			X		X
21-L	X	X			X
26-S	X		X	X	X
26-L		X		X	
33-S	X	X	X	X	X
33-L				X	X
37-S			X		

NOTE: The L is large Hogan incision, while S is small Hogan incision. Net 33-S is the only color to make the best six colors for all five sites.

The results of each site for the above six best nets will not be included, because they would be too voluminous to present in these proceedings. This data is available upon request from the U.S. Army Belvoir Research, Development and Engineering Center, ATTN: STRBE-JDS, Fort Belvoir, VA 22060. When averaging the final best six ICCs across all five sites, a total of twelve ICCs made the best list. Some nets such as 37-S made the final six ICCs for only one site. A value of zero was added for each cell block when the ICC did not make the final six for that particular site. Tables 2-4 contain the statistics for the twelve ICCs. Figure 1 is the graphic display of Table 2. Table 5 describes the final twelve ICC nets as to color and incision.

TABLE 2

Descriptive Data for Final ICCs (Color Blend)
with Desert Background, Across All Sites

<u>COLOR</u>	<u>N</u>	<u>MEAN</u>	<u>STANDARD ERROR</u>	<u>95% CONFIDENCE INTERVAL</u>	
				<u>LOWER LIM</u>	<u>UPPER LIM</u>
P6-S	59	0.1864	0.6010	0.0298	0.3431
W-S	59	1.4237	1.6422	0.9957	1.8517
XI-S	59	1.5932	1.5550	1.1879	1.9985
XI-L	59	1.6780	1.8795	1.1881	2.1678
12-S	59	0.1017	0.6616	0.0000	0.2741
21-S	59	0.9153	1.3808	0.5554	1.2751
21-L	59	0.9831	1.2931	0.6460	1.3201
26-S	59	2.8983	1.8541	2.4151	3.3816
26-L	59	1.2712	1.7304	0.8202	1.7222
33-S	59	2.7119	1.4026	2.3463	3.0774
33-L	59	0.6610	1.1539	0.3603	0.9618
37-S	59	0.5763	1.2206	0.2581	0.8944

Note that the higher the mean value, the better the ICC blended with the desert environments.

TABLE 3

Analysis of Variance for Final ICCs (Color Blend)
with Desert Background, Across All Sites

<u>SOURCE</u>	<u>DF</u>	<u>SUM OF SQUARES</u>	<u>MEAN SQUARE</u>	<u>F-TEST</u>	<u>SIG LEVEL</u>
Color	11	508.5466	46.2315	22.8823	0.0000*
Error	696	1406.2034	2.0204		
Total	707	1914.7500			

* Significant at α less than .001 level.

This table indicates that there are significant differences in the ability of the final ICCs to blend with the desert backgrounds. Table 4 identifies which ICCs are significantly different from each other.

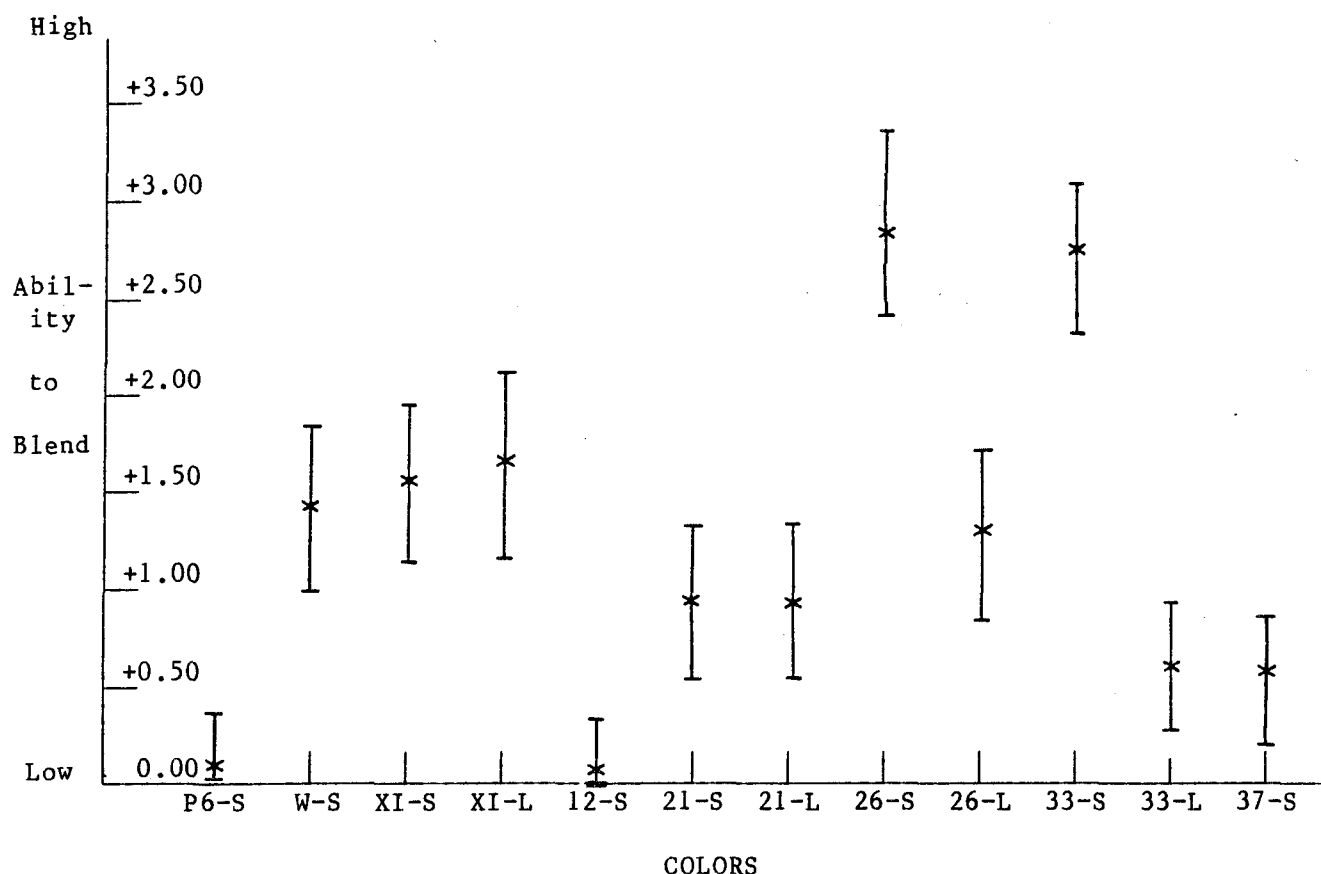


Figure 1. Ability of the Final ICCs to Blend with Desert Background, Averaged Across All Sites.

TABLE 4

Individual Comparisons, Identifying Which of the Final ICC Colors Differed Significantly from Each Other, Averaged Across Sites

COLOR P6-S	AND COLOR W-S		
COMPARISON =	-1.23729	SUM OF SQUARES =	45.16102
F =	22.352	SIGNIFICANCE LEVEL =	0.00000 ***
COLOR P6-S	AND COLOR XI-S		
COMPARISON =	-1.40678	SUM OF SQUARES =	58.38136
F =	28.896	SIGNIFICANCE LEVEL =	0.00000 ***
COLOR P6-S	AND COLOR XI-L		
COMPARISON =	-1.49153	SUM OF SQUARES =	65.62712
F =	32.482	SIGNIFICANCE LEVEL =	0.00000 ***
COLOR P6-S	AND COLOR 12-S		
COMPARISON =	0.08475	SUM OF SQUARES =	0.21186
F =	0.105	SIGNIFICANCE LEVEL =	1.00000

TABLE 4 (Cont)

COLOR P6-S	AND COLOR 21-S		
COMPARISON =	-0.72881	SUM OF SQUARES =	15.66949
F =	7.756	SIGNIFICANCE LEVEL =	0.00543 **
COLOR P6-S	AND COLOR 21-L		
COMPARISON =	-0.79661	SUM OF SQUARES =	18.72034
F =	9.266	SIGNIFICANCE LEVEL =	0.00238 **
COLOR P6-S	AND COLOR 26-S		
COMPARISON =	-2.71186	SUM OF SQUARES =	216.94915
F =	107.379	SIGNIFICANCE LEVEL =	0.00000 ***
COLOR P6-S	AND COLOR 26-L		
COMPARISON =	-1.08475	SUM OF SQUARES =	34.71186
F =	17.181	SIGNIFICANCE LEVEL =	0.00004 ***
COLOR P6-S	AND COLOR 33-S		
COMPARISON =	-2.52542	SUM OF SQUARES =	188.14407
F =	93.122	SIGNIFICANCE LEVEL =	0.00000 ***
COLOR P6-S	AND COLOR 33-L		
COMPARISON =	-0.47458	SUM OF SQUARES =	6.64407
F =	3.288	SIGNIFICANCE LEVEL =	0.06998
COLOR P6-S	AND COLOR 37-S		
COMPARISON =	-0.38983	SUM OF SQUARES =	4.48305
F =	2.219	SIGNIFICANCE LEVEL =	0.13656
COLOR W-S	AND COLOR XI-S		
COMPARISON =	-0.16949	SUM OF SQUARES =	0.84746
F =	0.419	SIGNIFICANCE LEVEL =	0.51732
COLOR W-S	AND COLOR XI-L		
COMPARISON =	-0.25424	SUM OF SQUARES =	1.90678
F =	0.944	SIGNIFICANCE LEVEL =	0.33148
COLOR W-S	AND COLOR 12-S		
COMPARISON =	1.32203	SUM OF SQUARES =	51.55932
F =	25.519	SIGNIFICANCE LEVEL =	0.00000 ***
COLOR W-S	AND COLOR 21-S		
COMPARISON =	0.50847	SUM OF SQUARES =	7.62712
F =	3.775	SIGNIFICANCE LEVEL =	0.05222
COLOR W-S	AND COLOR 21-L		
COMPARISON =	0.44068	SUM OF SQUARES =	5.72881
F =	2.835	SIGNIFICANCE LEVEL =	0.09243
COLOR W-S	AND COLOR 26-S		
COMPARISON =	-1.47458	SUM OF SQUARES =	64.14407
F =	31.748	SIGNIFICANCE LEVEL =	0.00000 ***

TABLE 4 (Cont)

COLOR W-S	AND COLOR 26-L		
COMPARISON =	0.15254	SUM OF SQUARES =	0.68644
F = 0.340	SIGNIFICANCE LEVEL =	0.56006	
COLOR W-S	AND COLOR 33-S		
COMPARISON =	-1.28814	SUM OF SQUARES =	48.94915
F = 24.227	SIGNIFICANCE LEVEL =	0.00000	***
COLOR W-S	AND COLOR 33-L		
COMPARISON =	0.76271	SUM OF SQUARES =	17.16102
F = 8.494	SIGNIFICANCE LEVEL =	0.00362	**
COLOR W-S	AND COLOR 37-S		
COMPARISON =	0.84746	SUM OF SQUARES =	21.18644
F = 10.486	SIGNIFICANCE LEVEL =	0.00123	**
COLOR XI-S	AND COLOR XI-L		
COMPARISON =	-0.08475	SUM OF SQUARES =	0.21186
F = 0.105	SIGNIFICANCE LEVEL =	1.00000	
COLOR XI-S	AND COLOR 12-S		
COMPARISON =	1.49153	SUM OF SQUARES =	65.62712
F = 32.482	SIGNIFICANCE LEVEL =	0.00000	***
COLOR XI-S	AND COLOR 21-S		
COMPARISON =	0.67797	SUM OF SQUARES =	13.55932
F = 6.711	SIGNIFICANCE LEVEL =	0.00968	**
COLOR XI-S	AND COLOR 21-L		
COMPARISON =	0.61017	SUM OF SQUARES =	10.98305
F = 5.436	SIGNIFICANCE LEVEL =	0.01987	*
COLOR XI-S	AND COLOR 26-S		
COMPARISON =	-1.30508	SUM OF SQUARES =	50.24576
F = 24.869	SIGNIFICANCE LEVEL =	0.00000	***
COLOR XI-S	AND COLOR 26-L		
COMPARISON =	0.32203	SUM OF SQUARES =	3.05932
F = 1.514	SIGNIFICANCE LEVEL =	0.21870	
COLOR XI-S	AND COLOR 33-S		
COMPARISON =	-1.11864	SUM OF SQUARES =	36.91525
F = 18.271	SIGNIFICANCE LEVEL =	0.00002	***
COLOR XI-S	AND COLOR 33-L		
COMPARISON =	0.93220	SUM OF SQUARES =	25.63559
F = 12.688	SIGNIFICANCE LEVEL =	0.00038	***
COLOR XI-S	AND COLOR 37-S		
COMPARISON =	1.01695	SUM OF SQUARES =	30.50847
F = 15.100	SIGNIFICANCE LEVEL =	0.00011	***

TABLE 4 (Cont)

COLOR XI-L	AND COLOR 12-S		
COMPARISON =	1.57627	SUM OF SQUARES =	73.29661
F = 36.278	SIGNIFICANCE LEVEL =	0.00000	***
COLOR XI-L	AND COLOR 21-S		
COMPARISON =	0.76271	SUM OF SQUARES =	17.16102
F = 8.494	SIGNIFICANCE LEVEL =	0.00362	**
COLOR XI-L	AND COLOR 21-L		
COMPARISON =	0.69492	SUM OF SQUARES =	14.24576
F = 7.051	SIGNIFICANCE LEVEL =	0.00801	**
COLOR XI-L	AND COLOR 26-S		
COMPARISON =	-1.22034	SUM OF SQUARES =	43.93220
F = 21.744	SIGNIFICANCE LEVEL =	0.00000	***
COLOR XI-L	AND COLOR 26-L		
COMPARISON =	0.40678	SUM OF SQUARES =	4.88136
F = 2.416	SIGNIFICANCE LEVEL =	0.12032	
COLOR XI-L	AND COLOR 33-S		
COMPARISON =	-1.03390	SUM OF SQUARES =	31.53390
F = 15.608	SIGNIFICANCE LEVEL =	0.00008	***
COLOR XI-L	AND COLOR 33-L		
COMPARISON =	1.01695	SUM OF SQUARES =	30.50847
F = 15.100	SIGNIFICANCE LEVEL =	0.00011	***
COLOR XI-L	AND COLOR 37-S		
COMPARISON =	1.10169	SUM OF SQUARES =	35.80508
F = 17.722	SIGNIFICANCE LEVEL =	0.00003	***
COLOR 12-S	AND COLOR 21-S		
COMPARISON =	-0.81356	SUM OF SQUARES =	19.52542
F = 9.664	SIGNIFICANCE LEVEL =	0.00192	**
COLOR 12-S	AND COLOR 21-L		
COMPARISON =	-0.88136	SUM OF SQUARES =	22.91525
F = 11.342	SIGNIFICANCE LEVEL =	0.00078	***
COLOR 12-S	AND COLOR 26-S		
COMPARISON =	-2.79661	SUM OF SQUARES =	230.72034
F = 114.195	SIGNIFICANCE LEVEL =	0.00000	***
COLOR 12-S	AND COLOR 26-L		
COMPARISON =	-1.16949	SUM OF SQUARES =	40.34746
F = 19.970	SIGNIFICANCE LEVEL =	0.00001	***
COLOR 12-S	AND COLOR 33-S		
COMPARISON =	-2.61017	SUM OF SQUARES =	200.98305
F = 99.477	SIGNIFICANCE LEVEL =	0.00000	***

TABLE 4 (Cont)

COLOR 12-S	AND COLOR 33-L		
COMPARISON =	-0.55932	SUM OF SQUARES =	9.22881
F = 4.568	SIGNIFICANCE LEVEL =	0.03275	*
COLOR 12-S	AND COLOR 37-S		
COMPARISON =	-0.47458	SUM OF SQUARES =	6.64407
F = 3.288	SIGNIFICANCE LEVEL =	0.06998	
COLOR 21-S	AND COLOR 21-L		
COMPARISON =	-0.06780	SUM OF SQUARES =	0.13559
F = 0.067	SIGNIFICANCE LEVEL =	1.00000	
COLOR 21-S	AND COLOR 26-S		
COMPARISON =	-1.98305	SUM OF SQUARES =	116.00847
F = 57.418	SIGNIFICANCE LEVEL =	0.00000	***
COLOR 21-S	AND COLOR 26-L		
COMPARISON =	-0.35593	SUM OF SQUARES =	3.73729
F = 1.850	SIGNIFICANCE LEVEL =	0.17403	
COLOR 21-S	AND COLOR 33-S		
COMPARISON =	-1.79661	SUM OF SQUARES =	95.22034
F = 47.129	SIGNIFICANCE LEVEL =	0.00000	***
COLOR 21-S	AND COLOR 33-L		
COMPARISON =	0.25424	SUM OF SQUARES =	1.90678
F = 0.944	SIGNIFICANCE LEVEL =	0.33148	
COLOR 21-S	AND COLOR 37-S		
COMPARISON =	0.33898	SUM OF SQUARES =	3.38983
F = 1.678	SIGNIFICANCE LEVEL =	0.19543	
COLOR 21-L	AND COLOR 26-S		
COMPARISON =	-1.91525	SUM OF SQUARES =	108.21186
F = 53.559	SIGNIFICANCE LEVEL =	0.00000	***
COLOR 21-L	AND COLOR 26-L		
COMPARISON =	-0.28814	SUM OF SQUARES =	2.44915
F = 1.212	SIGNIFICANCE LEVEL =	0.27108	
COLOR 21-L	AND COLOR 33-S		
COMPARISON =	-1.72881	SUM OF SQUARES =	88.16949
F = 43.639	SIGNIFICANCE LEVEL =	0.00000	***
COLOR 21-L	AND COLOR 33-L		
COMPARISON =	0.32203	SUM OF SQUARES =	3.05932
F = 1.514	SIGNIFICANCE LEVEL =	0.21870	
COLOR 21-L	AND COLOR 37-S		
COMPARISON =	0.40678	SUM OF SQUARES =	4.88136
F = 2.416	SIGNIFICANCE LEVEL =	0.12032	

TABLE 4 (Cont)

COLOR 26-S	AND COLOR 26-L		
COMPARISON =	1.62712	SUM OF SQUARES =	78.10169
F = 38.656	SIGNIFICANCE LEVEL =	0.00000	***
COLOR 26-S	AND COLOR 33-S		
COMPARISON =	0.18644	SUM OF SQUARES =	1.02542
F = 0.508	SIGNIFICANCE LEVEL =	0.47633	
COLOR 26-S	AND COLOR 33-L		
COMPARISON =	2.23729	SUM OF SQUARES =	147.66102
F = 73.085	SIGNIFICANCE LEVEL =	0.00000	***
COLOR 26-S	AND COLOR 37-S		
COMPARISON =	2.32203	SUM OF SQUARES =	159.05932
F = 78.726	SIGNIFICANCE LEVEL =	0.00000	***
COLOR 26-L	AND COLOR 33-S		
COMPARISON =	-1.44068	SUM OF SQUARES =	61.22881
F = 30.305	SIGNIFICANCE LEVEL =	0.00000	***
COLOR 26-L	AND COLOR 33-L		
COMPARISON =	0.61017	SUM OF SQUARES =	10.98305
F = 5.436	SIGNIFICANCE LEVEL =	0.01987	*
COLOR 26-L	AND COLOR 37-S		
COMPARISON =	0.69492	SUM OF SQUARES =	14.24576
F = 7.051	SIGNIFICANCE LEVEL =	0.00801	**
COLOR 33-S	AND COLOR 33-L		
COMPARISON =	2.05085	SUM OF SQUARES =	124.07627
F = 61.412	SIGNIFICANCE LEVEL =	0.00000	***
COLOR 33-S	AND COLOR 37-S		
COMPARISON =	2.13559	SUM OF SQUARES =	134.54237
F = 66.592	SIGNIFICANCE LEVEL =	0.00000	***
COLOR 33-L	AND COLOR 37-S		
COMPARISON =	0.08475	SUM OF SQUARES =	0.21186
F = 0.105	SIGNIFICANCE LEVEL =	1.00000	

The following ICCs differed significantly from each other: P6-S vs. W-S, P6-S vs. XI-S, P6-S vs. XI-L, P6-S vs. 21-S, P6-S vs. 21-L, P6-S vs. 26-S, P6-S vs. 26-L, P6-S vs. 33-S, W-S vs. 12-S, W-S vs. 26-S, W-S vs. 33-S, W-S vs. 33-L, W-S vs. 37-S, XI-S vs. 12-S, XI-S vs. 21-S, XI-S vs. 21-L, XI-S vs. 26-S, XI-S vs. 33-S, XI-S vs. 33-L, XI-S vs. 37-S, XI-L vs. 12-S, XI-L vs. 21-S, XI-L vs. 21-L, XI-L vs. 26-S, XI-L vs. 33-S, XI-L vs. 33-L, XI-L vs. 37-S, 12-S vs. 21-S, 12-S vs. 21-L, 12-S vs. 26-S, 12-S vs. 26-L, 12-S vs. 33-S, 12-S vs. 33-L, 21-S vs. 26-S, 21-S vs. 33-S, 21-L vs. 26-S, 21-L vs. 33-S, 26-S vs. 26-L, 26-S vs. 33-L, 26-S vs. 37-S, 26-L vs. 33-S, 26-L vs. 33-L, 26-L vs. 37-S, 33-S vs. 33-L, and 33-S vs. 37-S.

* Significant at α less than .05 level.

** Significant at α less than .01 level.

*** Significant at α less than .001 level.

TABLE 5

Physical Description of the Final Twelve ICCs

<u>COLOR/INCISION</u>	<u>DESCRIPTION</u>
P6-S	Black spots on tan color 26, color XI on reverse side.
W-S	A fifty-fifty mixture of Saudi Arabian color 8 and 7 in both sides of the net.
XI-S	Standard tan color on both sides of the net.
XI-L	Same color as XI-S, only this ICC has large incisions.
12-S	New color on both sides of net.
21-S	Color XI on one side of the net, new color 33 on the other side.
21-L	Same color as 21, only this ICC has large incisions.
26-S	New color on both sides of net.
26-L	Same color as 26, only this ICC has large incisions.
33-S	New color on both sides of net.
33-L	Same color as 33, only this ICC has large incisions.
37-S	Color XI on one side of the net, with color W on the other side.

Note that S is small Hogan incisions, while L is large Hogan incisions.

4.0 SECTION 4 - DISCUSSION

All the colors were on the gray or tan scale, with the tan colors rated as having the most ability to blend with the desert background. Table 1 shows that the pattern ICC net P6-S was the only multi-color to make the final twelve ICCs, and it along with net 12-S was judged by the ground observers as having the least ability to blend with the desert background when averaged across all five sites. Net 33-S was the only net to make the final six for all sites. ICC 26-S was a final net for all sites, except for Yuma site #2. These nets did not significantly differ from each other ($\alpha = 0.476$), with net 33-S having a preference rating of 3.07 to 3.38 for net 26-S. The Yuma site #2 area was very rocky, while the other sites were very sandy. The test team has seen deserts in Egypt and Saudi Arabia, and these deserts were very sandy. Therefore, net 26-S appears to be the best ICC for general desert use. This color was among the best six at Yuma site #2, only it had large Hogan inci-

sions (26-L). The texture of the rocks is larger and more rough in appearance than that of sand. It appears that the texture of the rocks was the driving force in the selection of 26-L rather than 26-S. Four of the top five ICCs, 26-S, 33-S, XI-S and W-S, were small incisions. The only exception is ICC XI-L. Except for very rocky deserts, the small incision blends best with the texture of the desert floor. Desert color paint studies^{2,3,4/} have shown that the desert southwest is a darker more gray desert than those seen in Saudi Arabia and Egypt. Additional deserts of interest in the Middle East should be photographed and soil samples studied before a final decision is made for the colors 26 and 33.

5.0 SECTION 5 - SUMMARY AND CONCLUSIONS

A total of thirty-seven colors were painted on seventy-four vinyl-coated sheets 5' x 7'. Each color was given either the small or large Hogan incision. These ICCs were then taken to five sites in the desert southwest and evaluated as to their ability to blend with the desert background in terms of color and texture. Ten enlisted U.S. Marine Corps personnel from Camp Pendleton, California, and two civilians from the Belvoir Research, Development and Engineering Center, Fort Belvoir, Virginia, served as ground observers. The seventy-four ICCs were randomly assigned to groups of six each. The four ICCs that best blended with the desert environment were selected and put aside for additional evaluation which continued until the best six for each site remained. These best six ICCs were then viewed on all possible pairs (15), with the best selected for each pair in their ability to match the desert floor. The number of times the individual ICC was judged to be best was tabulated and subjected to data analysis. The following conclusions were drawn:

- a. Colors 26 and 36 were the most effective in blending with the desert.
- b. Color 26 was selected for initial ICC production.
- c. The small Hogan incision (S) is more effective than the large Hogan incision (L) except for very rocky terrain.
- d. The U.S. desert southwest is darker and more gray than the sites seen in the Middle East, making additional work on the two colors necessary before final color selection.

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