

> D>D> @ 0 - Lophophora

gradinar, A J 1> B 0 25 0 ? @ 8 ; 2009 - 16:03:30

> D>D> @ 0 B 0 (Lophophora) 5 ? @> G C B 0 : 0 B> = 0 @ :> B 8 G 5 = : 0 : B C A . @ 8
B>20 5 548= > B = 09- = 5>18:=>25=8B5 ? @ 54 A B 0 28 B 5 ; 8 = 0
A 5<59 A B 2> 0 : B C A 8 . ; 0 2 = 0 B 0 9 > A>15=>A B 5 ? J ; = 0 B 0 ; 8 ? A 0
= 0 1>4 ; 8 . < 5 A B> B O E D C = : F 8 O B 0 4 0 :>=45=78 @ 0 B 2 ; 0 3 0
8 7 ? J ; = O 2 0 B A => ? G 5 B 0 B 0 3 @ C 1 8 1 5 ; 8 2 ; 0 : J = F 0 , :>8 B>
C 2 5 = G 0 2 0 B 3> ; 5<8 B 5 , = 0 @ O 4 :> @ 0 7 ?> ;>65=8 0 @ 5> ; 8 . 0 B O E
A 5 4 J ; 6 8 1>B 0 = 8 G 5 A :>B> 8<5 = 0 : 0 : B C A 0 > B 3 @ J F : 8 B 5
4 C<8 lophos ? 5 @ G 5< , ? 8 A : N ; , 8 phoros => A O . 5 A : 8 :> 3>
= 0 @ 8 G 0 B A ? @ 5 4 :> ; C<1>2>B> < C = 0 7 2 0 = 8 5 ? 5 9> B ; , 0 2
) 0 B 8 B 5 4 O 2> ; A : 8 :> @ 5 = 8 : 0 : B C A - ? C 4 8 = 3 .

J @ 2 8 O ? @ 5 4 A B 0 2 8 B 5 ; = 0 @>40 5> ? 8 A 0 = > B Charles Antoine Lemaire, ? @ 5 7
1840 3>48=0 ?>4 8<5 B> Echinocactus williamsii, 5 4 2 0 ? @ 5 7 1894 3>48=0 John Coulter,
2 J 2 5 6 4 0 2 1>B 0 = 8 G 5 A : 0 B 0 =><5=:; 0 B C @ 0
= 0 8<5=>20=85 B> Lophophora, ? @>87 E>640 I> > B 3 @ J F : 8 B 5 4 C<8
"lophos" - : 8 G C @ , ? 5 @ G 5< 8 "phero" - => A O , :>5 B> E 0 @ 0 : B 5 @ 8 7 8 @ 0
= 0 ; 8 G 8 5 B> , > A>15=> ?> 2 @ J E = 0 B 0 G 0 A B = 0 A B J 1 ;>B> , = 0
A 8 ; => 2 J ; = 8 A B 8 0 @ 5> ; 8 , ? @ 8 ; 8 G 0 1 8 = 0 B C D 8 G : 8 8 ; 8 G 5 B G 8 F 8 ,
?> : @ 8 B 8 A G 5 B 8 => ?>4>1=8 2 ; 0 A 8 = : 8 .

> D>D> @ 0 5 548= > B = 09- = 5>18 G 0 9 = 8 B 5 @>4>25>B
A 5<59 A B 2> 0 : B C A>28 A 4>A B 0 A : 0 = 40 ; = 0 @ 5 ? C B 0 F 8 O . 4>
4 = 5 A = 5 3>28 B 5 ? @ 5 4 A B 0 2 8 B 5 ; 8 , ? @>4 J ; 6 0 2 0 B 4 0 A 0
? @ 5 A ; 5 4 2 0 = 8 > B A ; C E>25 , ; 5 3 5 = 4 8 , : C ; B>25 8
0 4<8 = 8 A B @ 0 B 8 2 = 8 A 0 = : F 8 8 . ">78 ?>28 H 5 = 8 = B 5 @ 5 A : J<
> D>D> @ 8 B 5 A 5 4 J ; 6 8 = 0 A J 4 J @ 6 0 1 8 B 5 A 5 2 : ; 5 B J G = 8 O A> :
= 0 B 5 7 8 @ 0 A B 5 = 8 O , = 0 F O ; 0 3 @ C ? 0 0 ; : 0 ;>848 , :>8 B> ? @ 8
C ?>B @ 5 1 O 2 0 = 5 2 J 7 4 5 9 A B 2 0 B A 8 ; => 2 J @ E C = 5 @ 2 = 0 B 0
A 8 A B 5<0 = 0 6 8 2>B = 8 B 5 8 E> @ 0 B 0 . 1 5>B 4> :> ; C<1>28
2 @ 5<5=0 , 8 = 4 8 0 = A : 8 B 5 H 0<0 = 8 A 0 ?>7=0 2 0 ; 8 B 0 9 = 8 B 5 7 0
? @ 8 3>B 2 O = 5 B> = 0 A 2 5 1 5 = 0 = 0 ? 8 B : 0 , > B A J 1 @ 0 = 8 > B
? @ 8 @>40 B 0 @ 0 A B 5 = 8 O 8 A 0 O 8 7 ?> ; 7 2 0 ; 8 ?> 2 @ 5<5 = 0
: C ; B>28 B 5 8>1 @ 5 4 = 8 F 5 @ 5<=>=88 , ? @ 5 4 8 7 2 8 : 2 0 9 : 8 2 A 5 1 5 A 8
C A 5 1 0 = 5 B> 7 0 " ?>A 5 1 5 = 8 5 > B 5 ; 8 : 8 O C E " . @ 8 B>20 = 5
? @ 8 G 8 A ; 5 = 8 B 5 : J< A J 2 5 B 0 H 0<0 = 8 1 8 ; 8 = 0 : 0 7 2 0 = 8 ? @ 8
= 0 9 -<0 ; : 8 O> ? 8 B 4 0> ? 8 B 0 B> B 7 0 2 5 B = 0 B 0 = 0 ? 8 B : 0 . C ; B 0 : J<
> D>D> @ 8 B 5 8 ; 8 : 0 : B> 3 8 = 0 @ 8 G 0 B " ? 5 9>B 5 " , A 5 5 A J E @ 0 = 8 ; 8
4> = 0 H 8 4 = 8 , 2>F 5 ; 5 ; 8 B 5 8 = 4 8 0 = A : 8 @ 5 7 5 @ 2 0 B 8 , 0 B 5 7 8 :>8 B>
= 5 A 5 A B @ 5<O B : J< >1 I C 2 0 = 5 A 5 ; 8 : 8 O C E , C ?>B @ 5 1 O 2 0 B
= 0 A B>9 : 0 B 0>B > D>D> @ 0 , ? @ 8<5 A 5 = 0 A 1 8 ; : 8 , :>O B>

?>4>1=>=0;8AB0B0>B:>:0?@84J2:0=5,4>256404>
CA?>:>O20=5=0=5@2=0B0A8AB5<0,?>@06409:8GC2AB2>=0
1;03>?>;CG858C4>2;5B2>@5=>AB.0=0@:>B8G=8B5
A2>9AB20=0>D>D>@8B5A0=0?8A0=8B56:8B><>25,CG5=8
>B@07;8G=8AB@0=884>A530A5B@C4OB=0487@01>B:0B0=0
=>20B>@A:0B5E=>;>38O70>B45;O=5>B:;5BJG=0B0<0A0
=0@0AB5=85B>=0<5A:0;8=0,;>D>D>@8=0,?5;>B8=0,
0=E0;>=848=084@C38B5284>250;;0;>848.;0AB8B5=0
=O:>9>B10B8B5=0!)85:A8:>=5254=J6A02J25640;8
701@0=82J@EC?@>40610B08AJ18@0=5B>=0>D>D>@8>B
?@8@>40B0.>4>1=8701@0=8459AB20B548=AB25=>2?>;70
=0@0AB5=8OB0,BJ9:0B><5AB0B08<=0@07?@>AB@0=5=85
AB020B2A5?>-<0;:>8?>-<0;:>.

5AB5AB25=8B5A8CA;>28O,>D>D>@8B5705<0B4>AB0
>1H8@5=0@5>;>B10B0"5:A0A2!),4>10B05@5B0@>2
5:A8:>,A=04<>@A:028A>G8=0>B50<5B@0210B0
"0<0C;8?0A,4>1800<5B@0210B0!0=C8A>B>A8.!@510BA5
?>20@>28B8?;0=8=A:8A:;>=>25B5,?>4?@8:@8B85B>=0
=8A:>@0ABOI8E@0AB8,=0=04<>@A:028A>G8=0>B2004>2000
<5B@0.

?>-3>;O<0B0A8G0AB?@>87E>640B>BACE8?CAB8==8
>1;0AB8,@0AB0B2J@EC>B;><JG=8OA;>9=0?>G20B0,A@54
3;8=5AB8H8AB8,?>4G0AB8G=0B0AO=:0E2J@;O=0>B3025,
.:0,:@5>7>B>28E@0AB8(Larrea tridentata)80:0F8846C465B0.
B3;54=0B>G:0=0B0:A>=><8OB0>D>D>@8B5AJ74020B
=O:>9B@C4=>AB8,BJ9:0B>>?@545;8B5;=8B58<
E0@0:B5@8AB8:820@8@0B2@07;8G=0AB5?5=,4>@82
?@545;8B5=0548=548=AB25=284.>@048B>204>A530
1@>O=0284>25B58B5E=8B5@07=>284=>AB8BCA5
C25;8G020,BCA5AJ:@0102027028A8<>AB>BAC15:B82=8O
?>4E>4=02A5:8>B87A;54>20B5;8B5.0:B>25AB5AB25=0B0
A8A@540,B0:082:>;5:F88B5,>D>D>@8B5;5A=>A5
@07;8G020B?>>1;>B>A8,A?;5A=0B>ABJ1;>,H8@>:8B5,
?>GB83;04:8@51@0,AE0@0:B5@=8O@8AC=J:??>
<564C@51@5=0B03@0=8F0,AJA82>A8=OB0:>68F0=0
5?845@<8A0,>BAJAB285B>=01>4;8G:8,8:8GC@G5B0B0?CE
?>=5?;JB=>@07?>;>65=8B50@5>;8.>I=8B5
@O?>284=8:>@5=8=0@0AB5=85B>2;870B=04J;1>:>2
B2J@40B0?>G2082?5@8>40=070ACH020=5,4>B>;:>20
AJ:@01020B>15<0A8,G5=0?J;=>?@84J@?20B275<OB0
=0475<=0B0G0AB=0ABJ1;>B>.84>25B5=5A0A:;>=840
>1@07C20BAB@0=8G=8874J=:8,@0AB0BA548=8G=>ABJ1;>8
A0<>27@O;02J7@0AB<>30B40@0728OB?@8:>@5=>28

87@0ABJF8, G5AB> B5 @072820B A2>O A>1AB25=0 :>@5=>20
A8AB5<0, 8;8 AB@0=8G=8 AB51;>28 874J=:8.

0:0:BCA0@8B5 >D>D>@8B5 ?@54AB02;O20B F5=5=
<0B5@80; 8 0:> A5 >B3;5640B ?@8 >?B8<0;=8 CA;>28O, A5
?@52@J10B 2 C:@0H5=85 70 :>OB> 8 40 5 :>;5:F8O. 5
3>;5<8B5 :0:BCA8 A0 A >1;>;5:> A?;5A=0B>, 3;04:>
ABJ1;>, 4>AB830I>=0 28A>G8=0 4>3 A<. 8 2 480<5BJ@ 4>5 A<.,
A 3;04J: :0B> :048D5 5?845@<8A >F25B5= 2 A82:02 8;8
A8=:02>-A82 F2OB. >@5=8B5 A0 <0A82=8, @O?>284=8. 51@0B0
>B6 4>10 =0 1@>9 A0 ;5:> 87?J:=0;8, <=>3> H8@>:8,
>A>15=> >:>;> 0@5>;8B5, @0745;5=8 A0 >B BJ=:8 8
>BG5B;828 1@0748G:8. > @51@0B0 8<0B 8 =0?@5G=8
24;J1=0B8=:8, :>8B> >1@07C20B <5:> >G5@B0=8 8740B8=:8.
>;5<8B5 ?>:@8B8 A 1O; ?CE 0@5>;8 A0 @07?>;>65=8 =0
@O4:>, B578 ?> 2@JE=0B0 G0AB =0 ABJ1;>B> 8<0B A=>?G5B0
>B 15;8 8;8 A828 2;0A8=:8. >4;8G:8 ?@0:B8G5A:8 >BAJAB20B.
&25B>25B5 A0 15;8, =56=> @>7>28, O@:> @>7>28, 6J;B8,
DC=85284=8, H8@>:> >B2>@5=8, 74@02> ?@8:@5?5=8,
?>O2O20B A5 2 1;87>AB 4> B>G:0B0 =0 @0AB56 8 A0 A @07<5@ 4>
2 A<. 2 480<5BJ@. ;>4>25B5 A0 1;54> @>7>28, ?@>4J;3>20B8,
4J;38 >:>;>1 A<, AJ4J@60B ?>=O:>;> A5<5=0 8 A5
?>O2O20B9-12 <5A5F0 A;54 FJDB560. J7@0AB=8B5 @0AB5=8O,
B@O120 40 A5 4J@60B 2 4J;1>:8 A0:A89:8, ?>:@82018 =0
28A>G8=0 @07<5@0 =0 :>@5=>20B0 A8AB5<0. !C1AB@0B0
B@O120 40 AJ4J@60 2 4>60% >B>15<0 A8 A<5A>B
?5AJG;82>-3;8=5AB0 ?>G20, A<5A5=0 A @02=8 G0AB8
:5@0<78B 8 4@515= G0:J;, 4>20% ;8AB>2:0, >AB0=0;0B0 G0AB
4>102JG=8 <0B5@80;8.
B3;5640=5B>=0 B578 :0:BCA8 =5 5 B@C4=> AB830 40 A5
AJ1;N4020B=O:>;> 704J;68B5;=8 ?@028;0. ;5B=8B5
<5A5F8 >D>D>@8B5 B@O120 40 A5 ?>AB02OB=0 A;J=G52>
<OAB>, 0 AC1AB@0B0 B@O120 40 A5 ?>44J@60 2J2 2;06=>
AJAB>O=85. >-4>1@5 5 40 =5 A5 ?@JA:0B A 2>40, 70I>B> B>20
<>65 40 4>2545 4> 703C10=0 ?CE0 ?>:@82010@5>;0. 0
5A5= ?>;820=5B> ?>AB5?5==> A5 =0<0;O20 8 @0AB5=85B>
A5 ?>43>B2O:J<01A>;NB=> ACE> 78<C20=5 ?@8
B5<?5@0BC@06-10 3@04CA0. !8420=5B>=0 ?@>;5BB0 70?>G20
?@>1C640=5B>, =5 1820 40 A5 ?@02OB @0=8 ?>;820=8O.
>@8 A1@JG:0;>B> A5 ?@57 78<=8O ?5@8>4 ABJ1;>, A
?>28H020=5B>=0 B5<?5@0BC@8B5 8 =0 2;06=>ABB0 2
>1:@J602010B0 3> A@540, =018@0 A8;0, 0 2J@E0 <C 75;5=55.
@57 B>78 ?5@8>4 >D>D>@8B5 B@O120 40 A5 ?@54?0720B >B
?@5:8B5 A;J=G528 ;JG8, 70 40 A5 87153=0B 8730@O=8O. 420
A;54 :0B> @0AB5=8OB0 70?>G=0B 40 @0AB0B, <>65 40 A5
2J7>1=>28 ?>;820=5B>. 07<=>6020=5B>=0 >D>D>@8,
AB020 3;02=> G@57 A5<5=0. @OA=> AJ1@0=8B5 A5<5=0,
?>:J;20B 54=>2@5<5==> 8 A@02=8B5;=> 1J@7> A5

@072820B. " @8, G5B8 @8 3>48=8 A;54 ?>:J;20=5B> 8<, 0
 ?>=O:>30 4>@8 ?>- @0=>, ? @8 ? @028;=> >B3;5640=5,
 >D>D> @8B5 70?>G20B 40 FJDBOB. @8A04:0 A5 ? @028, A0<>
 0:> B @O120 40 A5 A?0A8 =O:>9 703820I 5:75<?;O @8;8 A
 :><5 @A80;=0 F5;; 70 ?>-1J @7> @0728B85 =0 A5<5=0G5B0B0.
 @8A045=8B5 5:75<?;O @8, G5AB> >18;=> ?CA:0B 874J=:8,
 :>5B> ?J: >B20 @O =0G8= 70 2535B0B82=> 8< @07<=>6020=5.
 B @O70=8B5"?>4 :> @5=" 874J=:8 A;54 70AJE20=5,
 877;NG8B5;=> ;5A=> A5 2:> @5=O20B. >1 @8 @57C;B0B8 4020
 2:> @5=O20=5B> =0 874J=:8 ? @57 5A5=B0. !;030B A5 2J@EC
 A;>9 ?5 @;8B 8 A5 4J @60B ? @8 CA;>28O 70 78<C20=5 4>
 ? @>;5BB0. @57 ? @>;5BB0 =0 <5AB0B0, :J45B> A0 18;8
 A @O70=8, A5 >1 @07C20B <>I=8"G0:0I8" :> @5=8, A;54 :>5B>
 @0AB5=8OB0 A0 3>B>28 70 ?>A0640=5 2 AC1AB @0B. @8
 A @O720=5B> =0 >A=>2=>B> ABJ1;> 2J@EC :> @5=>20B0
 H89:0, ? @8 ?>;>65=85 G5 A5 >AB028 =5?>:JB=0B0
 :> @5=>20B0 A8AB5<0, G5AB> >1 @07C20 54=0 8;8 =O:>;:>
 874J=:8 ?> <OAB>B> =0 A @570.

48=AB25=8B5 ? @87=0B8 4> <><5=B0 284>25 >D>D> @8
 70?8A0=8 2 ?J;=8O A?8AJ: =0 ? @54AB028B5;8B5 =0
 A5<59AB2> 0:BCA>28 A0 Lophophora williamsii (AB0=40 @B=8O 284) 8 Lophophora
 diffusa.

>4284>25:

- Lophophora williamsii v. caespitosa - >18;=> >1 @0AB20 AJA AB @0=8G=8 874J=:8
 - Lophophora williamsii v. decipiens - 8<0 =09-3>;O<>B> ABJ1;>; 4>AB830I> 4>10
 A<. 2 480<5BJ@. 51 @0B0 A011 1 @>9, @0745;5=8 =0 3>;5<8
 :>=CA>284=8 8740B8=:8, @07?>;>65=8 A?8 @0;>284=>.
 &25B>25B5 A0 @>7>28 8 42C4><=8.
 - Lophophora williamsii v. pentagona - 8<05 H8 @>:8 @51 @0 AJA A;01> 87 @075=8
 8740B8=:8.
 - Lophophora williamsii v. pluricostata - =09-A?;5A=0B>B> @0AB5=85 AJA A;01>
 >G5 @B0=8 @51 @0 >B10 4>13 =0 1 @>9.
 - Lophophora williamsii v. texana - @O4:> A @5I0I> A5 @0AB5=85 A ? @028 @51 @0,
 1 @>O 8< 4>AB830 4>14.
 B3;5640=5: @57 ?J @28B5 3>48=8 @0AB5 4>AB0 102=>,
 FJDB56 5 2J7<>65= =0 B @5B0B0, G5B2J @B0B0 3>48=0 ? @57
 ? @>;5BB0.

*Lophophora fricii

8=. B5<?5 @0BC @0:5°C
 07?>;>65=85: ? @O:> A;J=F5, <0:A8<0;=0 >A25B5=>AB
 @>87E>4: 5:A8:>(I0B0 >0C8;0, >1;0AB8B5 85A:0, 0 @0A,
 !0= 54 @>)
 07;8G85 >B >A=>2=0B0 D> @<0 =0 Lophophora williamsii: 5?845 @<8A0 5
 A25B;> 75;5= 8;8 A82> 75;5=, @51 @0B0 >18:=>25=>

@0745;5=8>B1@0748G:8A0A?>25G:>87?J:=0;>AB8.
&25B>25B5A0@>7>2>G5@25=88A5>?@0H20B:@JAB>A0=>.
;>4>25B5A0@>7>28=0F2OBAG5@25=>BB5=J:!.!5<5=0B0
A0G5@=8=0F2OB,4J;381-1,5A<.%8<8G5A:8OAJAB02
(0;:0;>848B5),AJI>873;56405@07;8G5=.

>4284:
- Lophophora fricii forma albiflora - D>@<0A1O;F2OB

*Lophophora jourdaniana

8=.B5<?5@0BC@0:5°C
07?>;>65=85:??@O:>A;J=F5,<0:A8<0;=0>A25B5=>AB
@>87E>4:=58725AB5=
07;8G85>B>A=>2=0B0D>@<0=0Lophophora williamsii: ?C@?C@=>
75;5=0B0>:@0A:0=0ABJ1;0B0,?>-<0;:8B5?>@07<5@
G5@25=>28>;5B>28F25B>25,:>8B>A5>?@0H20B
:@JAB>A0=>,??>7@0G=>15;8B5<0;:81>4;8G:8?>
<;048B50@5>;8.

*Lophophora lutea

8=.B5<?5@0BC@0:5°C
07?>;>65=85:??@O:>A;J=F5,<0:A8<0;=0>A25B5=>AB
@>87E>4:=58725AB5=
07;8G85>B>A=>2=0B0D>@<0=0Lophophora diffusa:ABJ1;0B0A0
6J;B5=8:028,AJA828;8:0D5=8:02>BB5=J:,4>AB830B=0
480<5BJ@4>10A<.,=5?CA:0AB@0=8G=8874J=:8.51@0B0A0
8728B8,@0745;5=8>B1@0748G:8.@5>;8B5A0A;01>
2J;=8AB8.&25B>25B5A06J;B5=8:02>15;8,A@02=8B5;=>
3>;5<8.

*Lophophora viridescens

8=.B5<?5@0BC@0:5°C
07?>;>65=85:??@O:>A;J=F5,<0:A8<0;=0>A25B5=>AB
@>87E>4:F5=B@0;=>5:A8:>(!0=C8A>B>A8,@09>=0
=08>5@45).
07;8G85>B>A=>2=0B0D>@<0=0Lophophora diffusa:J.Halda70?8A20B>78
2842A?8AJ:0=0@>40,:0B>>1OA=O20B>20AJA
AJI5AB2C2010B0@07;8:0<564CA5<5=0B08F25B>25B5,2
A@02=5=85ALophophora diffusa.
?8A0=85: >-?>7=0B0?>48<5B>Lophophora diffusa v. koehresii, B>20
@0AB5=855A75;5=F2OB=0ABJ1;>B>,??>-BJ<5=>BB>78=0
4@C38B5284>25.&25B>25B5A0:@5<02>15;8A;5:0
:5AB5=O20828F0?>A@540B0,?>-3>;5<8A0>BF25B>25B5?@8
AB0=40@B=8B5284>25.;>4>25B5A015;8A@>7>2>BB5=J:!.
!5<5=0B0A0G5@=8,4J;381-1,5A<.

07<=>6020=5B>AB020G@57A5<5=08;8G@57>B45;O=5=0
45B:8B5.@5A=8B5A5<5=08<0B4>1@0:J;=O5<>AB8
?>;CG5=8B5>BBOE:0:BCAG5B0A5@072820B1J@7>.@8
?@028;=>>B3;5640=5<;048B5;>D>D>@870FJDBO20B,
:>30B>=02J@H0B33>48=8."J9:0B>;>D>D>@8B5>1@07C20B
<=>3>45B:8,@07<=>6020=5B>G@57>B45;O=5B>8<=5

?@54AB02;O20?@>1;5<. "578, :>8B> A0 1;87> 4> ?>G20B0,
>18:=>25=> 8<0B A2>O :>@5=>20 A8AB5<0 8 ;5A=>
70682O20B A0<>AB>OB5;=>.

@8=0H8O :;8<0B =0@:>B8G=8B5 25I5AB20 2 ;>D>D>@8B5 =5
A5>1@07C20B, 70B>20=5 38 O6B5!

!25B;8=0: 18;=> A;J=F5.

>40: @57 ;OB>B> C<5@5=>, ?@57 78<0B0=5 A5 ?>;820.

;06=>AB=0 2J74CE0: 8A:0.

>4E@0=20=5: 5 5 =C6=>.